# New Tashkent International Airport - Uzbekistan

## Environmental and Social Impact Assessment

## Volume 2: ESIA Main Text

### Vision Invest

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# Acronyms and Abbreviations

| Abbreviation | Definition |
|---|---|
| ACI | Airport Council International |
| AFFF | Aqueous Firefighting Foam |
| AoI | Area of Influence |
| AOP | Airport Operating Partner |
| APM | Automated People Mover |
| APU | Auxiliary Power Unit |
| ASL | Above Sea Level |
| ATC | Air Traffic Control |
| ATM | Air Traffic Movement |
| BHS | Baggage Handling System |
| BMEP | Biodiversity Monitoring and Evaluation Program |
| BOD | Biochemical Oxygen Demand |
| BS | British Standard |
| BTEX | Benzene, Toluene, Ethylbenzene, Xylene |
| C&D | Construction and Demolition |
| CAA | Civil Aviation Authority |
| CCIA | Climate Change Impact Assessment |
| CESMP | Construction Environmental & Social Management Plan |
| CFR | Code of Federal Regulation |
| CFU | Colony Forming Unit |
| CHA | Critical Habitat Assessment |
| CHSS | Community Health Safety and Security |
| CICA | Convention on International Civil Aviation |
| CLO | Community Liaison Officer |
| CMS | Convention on Migratory Species |
| COD | Commercial Operation Date |
| COM | Cabinet of Ministers |
| CRPD | Convention on the Rights of People with Disabilities |
| CSM | Conceptual Site Model |
| DAFOR | Dominant, Abundant, Frequent, Occasional, Rare |
| dB | Decibels |
| DFC | Development Finance Corporation |
| DFIs | Development Finance Institutions |
| DMRB | Design Manual for Roads and Bridges |

| Abbreviation | Definition |
|---|---|
| E&S | Environmental & Social |
| EAAA | Ecologically Appropriate Area of Analysis |
| EBRD | European Bank for Reconstruction and Development |
| EHS | Environmental, Health & Safety |
| EIA | Environmental Impact Assessment |
| EIB | European Investment Bank |
| EP | Equator Principles |
| EPA | Environmental Protection Agency |
| EPC | Engineering, Procurement and Construction |
| EPFIs | Equator Principles Financial Institutions |
| EPPO | European and Mediterranean Plant Protection Agency |
| EPRP | Emergency Preparedness and Response Plan |
| ESG | Environment and Social Governance |
| ESIA | Environmental and Social Impact Assessment |
| ESMP | Environmental and Social Management Plan |
| ESMS | Environmental and Social Management System |
| ESP | Environmental and Social Policy |
| ESR | Environmental and Social Requirements |
| EU | European Union |
| FAA | Federal Aviation Administration |
| FAO | Food and Agriculture Organisation |
| FAR | Federal Aviation Regulations |
| FATO | Final Approach and Take-off |
| FGD | Focus Group Discussion |
| FWT | Folding Wing Tip |
| GA | General Aviation |
| GBIF | Global Biodiversity Information Facility |
| GBVH | Gender Based Violence and Harassment |
| GHG | Green House Gas |
| GIIP | Good International Industry Practice |
| GoU | Government of Uzbekistan |
| GPN | Bank Good Practice Note |
| GPU | Ground Power Unit |
| GSE | Ground Support Unit |
| GSE/GSV | Ground Support Equipment / Ground Support Vehicle |

| Abbreviation | Definition |
|---|---|
| HGV | Heavy Goods Vehicle |
| HIV | Human Immunodeficiency Virus |
| HPZ | Health Protection Zone |
| HR | Human Resources |
| HRIA | Human Rights Impacts Assessment |
| HVAC | Heating Ventilation Air Conditioning |
| HW | Hazardous Waste |
| IAQM | Institute of Air Quality Management |
| IBAs | Important Bird & Biodiversity Areas |
| IBAT | Integrated Biodiversity Assessment Tool |
| ICAO | International Civil Aviation Organisation |
| IEMA | Institute of Environmental Management and Assessment |
| IFC | International Finance Corporation |
| ILO | International Labour Organization |
| ILS | Instrument Landing System |
| IMF | International Monetary Fund |
| IMMI | Noise Modelling Software |
| INDC | Intended Nationally Determined Contribution |
| IPCC | Intergovernmental Panel on Climate Change |
| ISO | International Organisation for Standardisation |
| IUCN | International Union for the Conservation of Nature |
| JBIC | Japan Bank for International Corporation |
| JSC | Joint Stock Company |
| KBA | Key Biodiversity Area |
| KEXIM | Export-Import Bank of Korea |
| LCA | Landscape Character Area |
| LEED | Leadership in Energy & Environmental Design |
| LI | Landscape Institute |
| LNTP | Limited Notice to Proceed |
| LRP | Livelihood Restoration Plan |
| LTO | Landing and Take-Off |
| MAP | Million Annual Passengers |
| MEEPCC | Ministry of Ecology, Environmental Protection and Climate Change |
| MEP | Mechanical, Electrical and Plumbing |
| MPC | Maximum Permissible Concentration |

| Abbreviation | Definition |
|---|---|
| MRO | Maintenance, Repair and Overhaul |
| MSDS | Material Safety Datasheet |
| MSW | Municipal Solid Waste |
| NBT | Nazar Business Technology |
| NCECC | National Committee on Ecology and Climate Change |
| NDC | Nationally Determined Contribution |
| NEXI | Nippon Export and Investment Insurance |
| NGO | Non-Governmental Organisation |
| NPR | Noise Preferential Route |
| NTS | Non-Technical Summary |
| OECD | Organisation for Economic Co-operation and Development |
| OESMP | Operational Environmental and Social Management Plan |
| OHS | Occupational Health and Safety |
| OHTL | Overhead Transmission Line |
| OSHA | Occupational Safety & Health Organisation |
| PA | Protected Areas |
| PAP | Project Affected Person |
| PBV/PBF | Priority Biodiversity Value / Priority Biodiversity Feature |
| PC/PEC | Project Contribution / Predicted Environmental Contribution |
| PFAS | Per- and polyfluoroalkyl Substances |
| PPE | Personal Protective Equipment |
| PS | Performance Standards |
| PSD | Particle Size Distribution |
| PV | Photovoltaic |
| RAP | Resettlement Action Plan |
| REPN | Regional Electric Power Network |
| RUz | Republic of Uzbekistan |
| SanR&N | Sanitary Rules & Norms |
| SEA | Sexual Exploitation and Abuse |
| SEE | State Environmental Expertise |
| SEP | Stakeholder Engagement Plan |
| SH | Sexual Harassment |
| SLM | Sound Level Meter |
| SPV | Special Purpose Vehicle |
| SPZ | Sanitary Protection Zone |

| Abbreviation | Definition |
|---|---|
| TAA | Tashkent Airport Alliance |
| TAS | Tashkent International Airport |
| TBT | Toolbox Talk |
| TPH | Total Petroleum Hydrocarbon |
| UA | Uzbekistan Airports |
| UN/UNDP | United Nations/United Nations Development Program |
| UNFCCC | UN Framework convention on Climate change |
| UST | Underground Storage Tank |
| UzRDB | Uzbekistan Red Data Book |
| VEC | Valued Environmental Components |
| VOC | Volatile Organic Compound |
| VPs | Vantage Points |
| WBG | World Bank Group |
| WHO | World Health Organisation |
| WWTP | Wastewater Treatment Plant |
| ZTV | Zone of Theoretical Visibility |

# 1.0 Introduction

## 1.1 Background Information

The proposed new Tashkent International Airport ('the Project') will be developed jointly by Vision Invest (also referred to as 'the Client'), Sojitz Corporation, Incheon International Airport Corporation, and Korea Overseas Infrastructure & Urban Development Corporation (together "the Sponsors"), appointed by JSC Uzbekistan Airports of the Republic of Uzbekistan (also referred to as "the Public Partner"). The Project is aimed at boosting tourism and accelerating economic growth in Uzbekistan and involves the design, construction, financing, operation, and maintenance of a new international airport in Tashkent city.

The Sponsors have been appointed by the Public Partner to design, construct, finance, operate and maintain the new Tashkent International Airport under a Public-Private Partnership Agreement (PPPA), governing the development, financing, construction, operation and maintenance of the Project.

The Sponsors are in process of establishing Tashkent Airport Alliance ("TAA") as the Special Purpose Vehicle (SPV) for the development and operation of the Project. Once the TAA is incorporated the PPPA will be transferred by Sponsors to TAA. The Sponsors and Public Partner will be shareholders of the TAA. Construction is scheduled to start in 2026, with a projected completion time of 48 months from Notice to Proceed. Commercial operations are anticipated to commence in 2030.

The Sponsors are currently engaging with various Development Finance Institutions and commercial banks ('lenders') for participation in project financing.

5 Capitals – Part of SLR (5 Capitals) has been engaged by the Client to undertake the independent assessment of potential environmental and social impacts, as well as certain other environmental & social related scope. 5 Capitals has partnered with a locally based consultant, 'Nazar Business Technology – part of Oqtavia (NBT)' (Tashkent, Uzbekistan) to undertake certain elements of the scope, including baseline surveys, consultations and preparation and submission of the National EIA to the National Committee on Ecology and Climate Change (NCECC) of the Republic of Uzbekistan, the regulatory authority for environmental affairs in Uzbekistan.

This Environmental and Social Impact Assessment (ESIA) report has been prepared for the purpose of the lenders review and approval. It has been prepared based on the scope detailed in the E&S Scoping Report that was prepared by 5 Capitals in July 2025 and approved by the lenders.

A separate standalone EIA prepared in line with the specific local requirements in Uzbekistan has been prepared by NBT and submitted to the national regulator as part of the national permitting purpose. A positive conclusion together with a conditional construction permit was issued on the 20th April 2026 (see section 1.5 for further details).

An organisation chart showing the main parties involved in the development of the Project are illustrated in Figure 1-1.

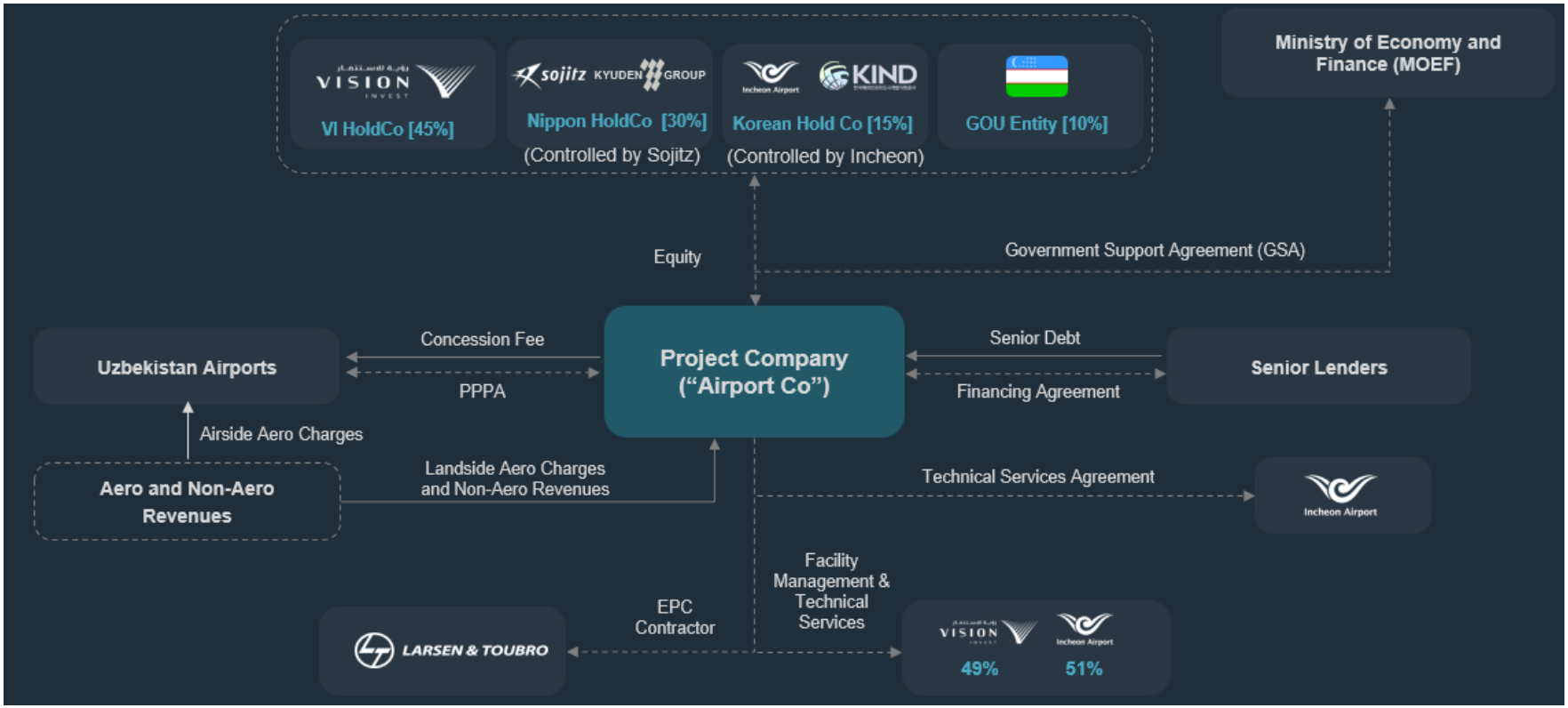



**Figure 1-1 Overall Project Development Organisation Structure**

## 1.2 Project Rationale

The Republic of Uzbekistan is in the process of developing the new Tashkent International Airport in order to replace the current Tashkent International Airport (TAS). This new greenfield airport is part of the strategic infrastructure developments that contribute to the rapid transition Uzbekistan is undergoing as it is opening to the world as a regional connection and leading destination in Central Asia.

The rationale for developing this new international airport is driven by several economic, strategic, and logistical factors aimed at transforming the region into a major transit and trade hub while supporting the nation's growing tourism and business sectors.

The key objectives of this Project are:

- to provide airport services for Tashkent and to serve as a global gateway connecting Uzbekistan to various international destinations;
- to contribute to economic development of Tashkent and Uzbekistan;
- to provide in safe and compliant, state of the art airport facilities;
- long term financial sustainability for the airport, its shareholders and stakeholders.

The key motivations and expected benefits highlighting the significant impact such a development could have on the country's position in Central Asia and the global economy are the following.

**Economic Growth and Diversification**

Uzbekistan has experienced steady economic growth, and the government is focused on diversifying its economy. A new international airport in Tashkent would attract foreign direct investment, boost trade, and promote tourism, contributing to the country’s GDP. As Uzbekistan increasingly positions itself as a gateway between Asia and Europe, improving air transport infrastructure is vital to accommodate rising passenger and cargo traffic, which traditional facilities may struggle to manage efficiently.

**Strategic Geolocation and Regional Connectivity**

Tashkent's strategic location in Central Asia gives it significant potential as a regional air transit hub. The new airport could establish Uzbekistan as a prime transit point between Europe and Asia, fostering closer economic and cultural ties with neighbouring countries. The project aligns with Uzbekistan’s vision to integrate into the global transport network and capitalize on its location, supporting both regional cooperation and broader connectivity initiatives such as China’s Belt and Road Initiative.

**Modernisation and Capacity Enhancement**

The existing Tashkent International Airport, though functional, lacks the capacity and modern facilities to handle anticipated growth in passenger and cargo volumes. A new airport will provide Uzbekistan with state-of-the-art infrastructure, incorporating advanced technology and modern logistics systems, essential for improving efficiency and safety. Expanding capacity would allow Tashkent to host more airlines, increasing the frequency of flights and providing more travel options for passengers and businesses.

**Development of Tourism Sector**

Uzbekistan’s historical and cultural sites, including the ancient cities of Samarkand, Bukhara, and Khiva, attract international tourists, but inadequate air infrastructure has been a barrier. A new international airport could facilitate tourism, bringing in more visitors, lengthening their stays, and boosting the hospitality and retail sectors. The airport project would help fulfil Uzbekistan's aim of increasing its tourism footprint, enhancing international awareness of the nation’s heritage, and diversifying the local economy.

**Sustainability and Environmental Considerations**

The new airport project presents opportunities to incorporate environmentally sustainable practices, a priority for modern airport developments. Energy-efficient infrastructure, waste management systems, and green spaces can set a new standard for future construction in Uzbekistan, aligning the country with global environmental best practices and attracting eco-conscious airlines and travellers. Integrating sustainability into this project would bolster Uzbekistan's commitment to environmental responsibility while also potentially reducing operational costs.

**Job Creation and Human Capital Development**

Constructing and operating a new international airport would generate thousands of jobs, from the construction phase through to long-term airport operations. This influx of employment opportunities supports human capital development, allowing Uzbekistan's workforce to acquire skills in logistics, hospitality, aviation management, and engineering. In turn, the airport's development would benefit communities by raising living standards and potentially stimulating growth in other industries, such as hospitality, retail, and real estate.

**National Image and Global Competitiveness**

A modern international airport enhances Uzbekistan's global image, showing its commitment to progress, openness, and readiness to compete in the global marketplace. For foreign investors and international businesses, improved accessibility to Tashkent can make Uzbekistan a more attractive destination for corporate expansion. As a symbol of progress, the airport can help to change global perceptions of Uzbekistan, signalling its ambitions as an emerging regional power.

## 1.3 Purpose and Objective of the ESIA

In accordance with the national environmental regulatory requirements in Uzbekistan, the Project will require an Environmental Impact Assessment (EIA) to be completed and approved by the environmental authority prior to commencement of the Project construction activities.

The Project Company is also seeking an amount of project finance from financial Institutions who have their own internal environmental & social investment policies/standards or may be members of voluntary agreements such as the Equator Principles. At this stage, it is understood that in addition to IFC, other lenders which include EBRD, US DFC, JBIC, NEXI and KEXIM are also involved in discussions relating to provisions of finance. Based on the requirements of these institutions, a process for undertaking an ESIA to assess potential impacts and determine suitable mitigation measures will be necessary as a process to reach financial close.

The primary objectives of the ESIA are as follows:

- Provide an overview of the Project design and construction and operational processes and requirements;
- Identification of sensitive receptors in the Project's areas of influence;
- Review of the relevant regulatory and legislative framework of Uzbekistan that are applicable to the Project, including national laws, applicable international regulations and standards, and international lender requirements;
- Assessment of the existing environmental and social baseline conditions prior to the development of the Project through a review of available existing data and the undertaking of environmental baseline surveys;

- Assessment of the Project's environmental and social impacts for the construction, operational, decommissioning, and post closure activities such as rehabilitation and restoration;
- Assessment of the Project's alternatives, specifically the no project alternative and siting alternatives;
- Determination of applicable mitigation and management measures to be implemented in order to avoid or minimise potential adverse impacts and enhance beneficial impacts;
- Preparation of a framework for which the construction and operational phase management systems and plans can be developed and implemented.

## 1.4 Structure of the ESIA

To align the ESIA with the requirements for environmental and social assessment established by the various lenders and good practice, the ESIA report is proposed to be presented in the following format developed by 5 Capitals:

- Volume 1: Non-Technical Summary
- Volume 2: ESIA - Main Text, Tables and Figures
- Volume 3: Framework for Environmental & Social Management
- Volume 4: Appendices

**Volume 1** is the Non-Technical Summary (NTS) of the ESIA, including the main outcomes, and conclusions.

**Volume 2** (this document) comprises the main text of the ESIA and full impact assessment, with mitigation, management and monitoring measures identified.

**Volume 3** provides the Framework for Environmental and Social Management.

**Volume 4** comprises all technical appendices relevant to the studies and ESIA.

## 1.5 National EIA

A Project specific Stage I EIA (ZVOS) was submitted to the National Committee on Ecology and Climate Change (NCECC) of the Republic of Uzbekistan (which replaced the earlier Ministry of Ecology, Environmental Protection and Climate Change as the national environmental permitting agency) by 5 Capitals' sub-consultant, NBT with support from the Public Partner. The Stage I EIA received a Positive Conclusion from the Ministry of Ecology and Climate Change, (MOECC) State Ecological Expertise (SEE) on 20 April 2026, confirming the environmental acceptability of the Project at the first stage of the national EIA process and permitting the start of construction works. The permit is valid for 3 years. The approval requires the preparation and subsequent submission of the Stage II Statement on Environmental Impact (EIS) to the SEE, together with the conditions specified in the approval. In addition, the approval specifies that construction activities associated with land acquisition, demolition and impacts on environmental components may only commence following completion of compensation procedures, implementation of the Resettlement Action Plan (RAP), and receipt of the necessary permits in accordance with applicable legislation. A copy of the national EIA approval is included in Appendix 1.

As part of the national EIA process, planned activities of certain types of projects in Uzbekistan are subject to public hearings which is a requirement since December 2020. Such recommendations are described in the Resolution of the Cabinet of Ministries of the Republic of Uzbekistan 541 "On further improvement of the mechanism for assessing the environmental impact". A public hearing and consultation session as per the local regulation was conducted

for the project during 17th February 2026, and the protocol of the public hearing formed part of the documentation submitted to NCECC.

Following completion of the detailed design and Stage II EIA, a Stage III Statement on Environmental Consequences is required to be submitted and approved prior to commencement of Project operations.

# 2.0 Project Description

## 2.1 Project Overview

The planned new Tashkent International Airport will be developed under Presidential Decree PQ-353, issued 25th November 2025, as a replacement for the current Tashkent International Airport (TAS), marking a significant step in Uzbekistan's strategic infrastructure development. Once the new airport becomes operational and the transition of services is completed, commercial airport operations are expected to cease at the existing airport.

The scope of impact assessments has therefore been undertaken on the basis that airport operations will transfer from the existing airport to the new airport following commissioning of the new facility. The closure and future use of the existing airport site are not part of the proposed Project and are therefore outside the scope of this ESIA.

This new greenfield airport is a key part of the country's rapid transition as it seeks to establish itself as a regional connection and leading destination in Central Asia. The project aims to provide modern, safe, and compliant airport services for Tashkent, contribute to the economic development of the city and the country, and ensure the long-term financial sustainability of the airport and its stakeholders.

The airport will initially accommodate up to 20 million annual passengers (MAP), with planned expansions over the concession term to reach an ultimate capacity of 46 MAP. The scope of the ESIA is limited to the development of the initial phase (for up to 20MAP) of the airport only.

The first phase of the Project includes the construction of key infrastructure to accommodate up to 20 MAP. The development encompasses a passenger terminal building with a gross floor area of 208,364m² developed over 5 district levels for the opening year, equipped with modern systems such as: Passenger Boarding Bridge (PBB), a Baggage Handling System (BHS), and comprehensive Mechanical, Electrical, and Plumbing (MEP) systems. The air traffic control (ATC) tower, standing at 77 meters, will house essential ATC systems and a meteorology centre, serving as a landmark for the airport.

Support buildings include facilities for aircraft rescue and firefighting, a central utility centre, ground handling, and various operational and emergency services integrated within the passenger terminal. The airside infrastructure features two 4000-meter runways with associated taxiways, aprons, and lighting systems, supported by advanced navigational aids and meteorological systems.

The landside infrastructure is divided into passenger and support areas, with separate access roads for the terminal, and general aviation terminals, as well as for cargo and maintenance facilities. Comprehensive site-wide utilities will be installed, including heating and cooling plants, a power supply network, a fuel farm, water and wastewater systems, fire safety infrastructure, solid waste management, and a telecommunication network, ensuring the airport meets both local and international standards.

NACO, an international aviation consultancy, appointed by the Sponsors is undertaking the master planning and infrastructure design for the Project. The Sponsors has appointed Larsen & Toubro as the Engineering, Procurement and Construction (EPC) Contractor to handle the design, procurement, and construction services for the Project landside. The airside construction will be caried out by a separate EPC Contractor appointed by the Public Partner which is not confirmed at the time of preparing this ESIA report.

## 2.2 Project Development Scenario and Assessment Basis

As outlined earlier, the Project assessed in this ESIA comprises the proposed new Tashkent International Airport as currently defined for the initial development phase, with an operational capacity of up to 20 MAP. The Project footprint, associated land acquisition requirements and

resettlement impacts assessed in this ESIA are based on this initial development phase and the currently defined Project boundary.

The airport masterplan envisages the potential future expansion of the airport to an ultimate capacity of approximately 46 MAP. This future expansion is expected to occur within the approved airport masterplan area and based on the current masterplan, does not require expansion beyond the currently defined Project footprint or additional land acquisition outside the Project boundary. The future expansion does not currently form part of the Project seeking financing and approvals and will be subject to separate planning, design and, where required, environmental and social assessment as the detailed scope and implementation programme are defined.

Notwithstanding the above, certain infrastructure components, including the potable water supply network, wastewater collection and treatment systems and selected utility infrastructure, have been intentionally designed to accommodate the ultimate masterplan capacity of 46 MAP. This design approach has been adopted to avoid inefficient future reconstruction, minimise operational disruption and provide sufficient long-term infrastructure capacity. Accordingly, these infrastructure elements have been assessed based on their ultimate design capacity where relevant.

Similarly, certain operational assessments have considered the potential implications of the ultimate masterplan capacity where this provides a more robust assessment of long-term environmental and social effects. For example, aircraft noise modelling has included both the opening year and future operational scenarios to support establishment of the Sanitary Protection Zone (SPZ), while utility demand and selected operational infrastructure assessments have considered the ultimate design capacity where appropriate.

For other environmental and social topics, including construction impacts, land acquisition and resettlement, biodiversity, traffic during construction and other impacts directly attributable to the currently proposed Project, the assessment has been undertaken based on the initial 20 MAP development, reflecting the defined scope of the Project for financing and permitting purposes.

The cumulative impact assessment presented in this ESIA is proportionate to the level of design available for the Project and is based on the committed Phase 1 development. In accordance with IFC Performance Standard 1 and EBRD Environmental and Social Requirement 1, the assessment also considers the potential implications of the ultimate airport masterplan qualitatively where sufficient information is available.

The ultimate masterplan (approximately 46 MAP) has been considered as a future development scenario to identify the key environmental and social receptors that may be subject to increased pressures as airport activity expands. At this stage, however, the scale, timing, layout, operational characteristics and mitigation measures associated with future expansion phases have not been defined sufficiently to support meaningful quantitative assessment or modelling.

Accordingly, the ESIA does not present detailed quantitative predictions for the ultimate masterplan scenario, as these would be subject to a high degree of uncertainty and could be misleading. Future expansion phases will be subject to separate design development, environmental and social assessment, and applicable regulatory and lender review processes. These future assessments will update the cumulative impact assessment using the detailed information available at that time, including, where appropriate, quantitative modelling of air quality, greenhouse gas emissions, landscape and visual impacts, socio-economic effects, traffic and infrastructure capacity, and any other relevant environmental and social aspects.

Responsibility for undertaking future cumulative impact assessments rests with the Project Company / SPV as the Project developer and operator. Prior to the implementation of any future airport expansion phase beyond the currently assessed phase of the development, the

Project Company will review the proposed development against the requirements of the applicable national environmental legislation and the environmental and social requirements of the Project lenders. Where required, the cumulative impact assessment will be updated using the detailed design, operational forecasts and baseline information available at that time to evaluate the incremental and cumulative environmental and social impacts associated with the proposed expansion, taking into account other relevant existing, committed and reasonably foreseeable developments.

The updated cumulative impact assessment will be undertaken as part of the environmental and social assessment process for the relevant expansion phase and will be completed sufficiently in advance of construction to inform project design, mitigation measures and stakeholder engagement. The scope of each assessment will be proportionate to the nature and scale of the proposed expansion and will incorporate quantitative modelling and technical studies where appropriate. Any additional mitigation measures or management commitments identified through the assessment will be incorporated into the relevant Environmental and Social Management Plans (ESMPs) and other Project management documents, as applicable.

## 2.3 Project Location and Scale

The proposed Project site is located approximately 23 kilometres south of Tashkent city and about 20km from the existing Tashkent International Airport, in a predominantly flat rural area within the territory of the Tashkent Province, Urta-Chirchik and Kuyi-Chirchik districts. Location of the Project on a national and regional context are shown in Figure 2-1 and Figure 2-2 respectively.

The airport will span a 1,300-hectare plot, adjacent to the village of Yangitosh to the south, with several small villages nearby. The Project site is predominantly flat and is currently characterised by agricultural land, including cultivated fields and an established network of irrigation channels used for growing cotton and various other crops and fruits. The site spans 6km in length and 2.2km in width and area of approximately 13km$^2$, roughly in the shape of a parallelogram with approximately 70-degree orientation from true north. The land is primarily agricultural, with some identifiable structures visible on satellite imagery and intersected by various roads.

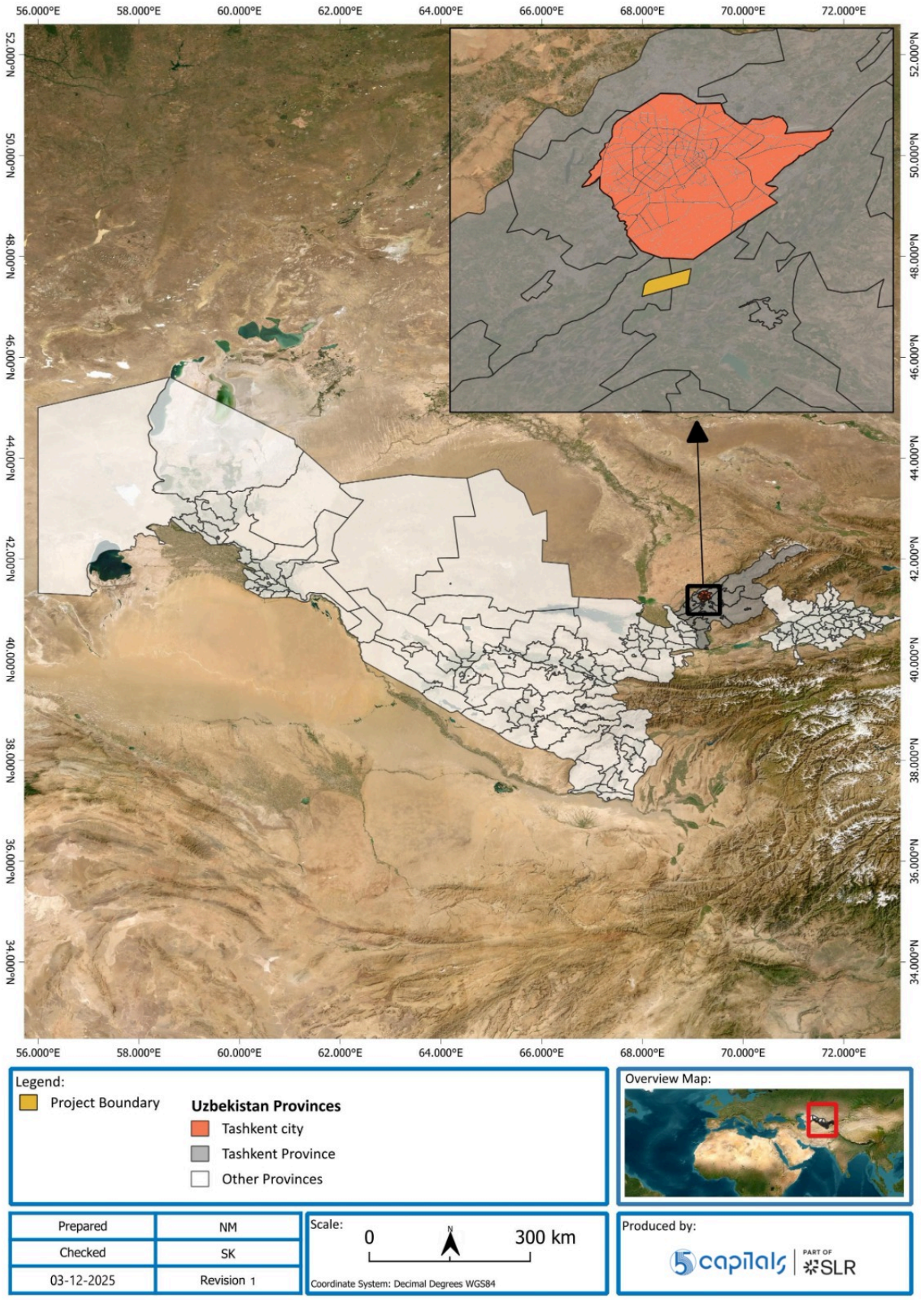



**Figure 2-1 Project Location (National Context)**

**Figure 2-2 Project Location (Local Context)**

## 2.4 Land Use and Site Conditions

### 2.4.1 Land Ownership

The land ownership structure in Uzbekistan is in accordance with the 1998 Land Code of the Republic of Uzbekistan, which stipulates that all land in Uzbekistan is owned by the State. However, the State permits the private individuals such as farmers to lease certain land areas from the State for economic benefits and housing. The Project site is currently being used by such individual parties who has leased the land mainly for arable farming and animal grazing activities (outside of the crop growing season).

Necessary agreements, specifically, a Land Lease Agreement (LLA) will be established with the government that will allow the Client to use the land without any interruption from the Government or any person claiming land ownership. However, the current land users who are potential Project Affected Persons (PAP) will have to be compensated based on their type of use, which are discussed later in more detail in this ESIA Report and detailed in the Resettlement Action Plan (RAP) document.

### 2.4.2 Land Use and Site Conditions

The proposed Project will be developed on a plot approximately 1,300 Ha in area. At present, almost the entirety of the site is used for agricultural purposes, as can be observed in Figure 2-3. The Project site is mainly used for cultivation of crops such as rice as well as cotton, pulses and vegetables. In addition to the cultivated fields, there are patches of land used for growing fruit trees, mostly located towards the central portion of the site. Herds of cattle were also observed grazing on the site.

In addition to the farmlands, there is also a small residential community which is part of the Xalqobod Mahalla, located towards the northeastern part of the Project site, part of which is located within the footprint of the Project area. There are also few small structures noted at three locations which includes one which used by a local farmer, an old building likely to be used for storing equipment in the past as well as an abandoned building scattered within the Project site. Based on GIS data provided by the Client there are four small areas identified as graveyards located within the site. The largest of these is approximately 1.3 Ha in area.

A network of smaller irrigation canals and drainage water collectors exist within the Project site and wider local area. There are also some Overhead Transmission Lines (OHTL) and internal access roads that passes through the Project site.

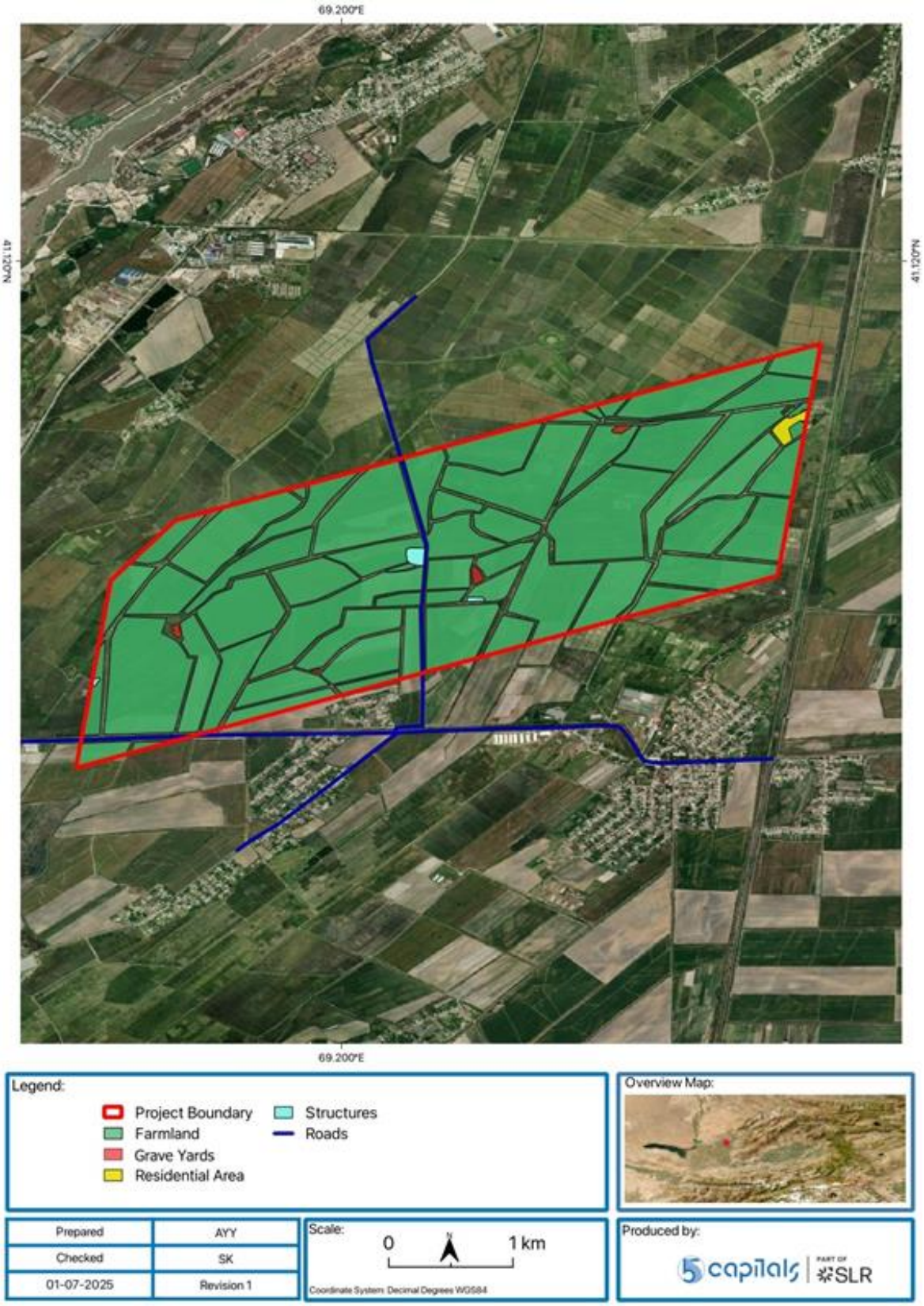



**Figure 2-3 Site Land Use**

Photographs taken during the course of the ESIA, showing the key features of the Project site land use and conditions are shown in following figures (Figure 2-4 to Figure 2-10).

**Figure 2-4 Typical Farmland at Project Site**

**Figure 2-5 Fruit Trees**

**Figure 2-6 Grazing Observed at Site**

**Figure 2-7 Drainage Collector within Project Site**

**Figure 2-8 Irrigation Canal**

**Figure 2-9 One of the Existing Buildings within Project Site**

**Figure 2-10 Existing Road**

## 2.5 Surrounding Area

### Communities

Majority of the land surrounding the Project area is farmland similar to what is currently found at the Project site. There are patches of rural communities around the site, with the closest approximately 70m from the southern project site boundary, within the planned future extension area of the airport. The nearest building structure within this community is located approximately 70m south of the Project boundary.

### Roads and Railway

An existing electrified railway line passes along the eastern edge of the Project site, serving as a passenger route. The closest major highway is the A373, a dual carriage way with the nearest section located approximately 6km from the eastern part of the site boundary. Additionally, there are minor local roads that primarily serve nearby communities including the one that passes along the southern part of the Project site.

### Water Bodies

The Chirchiq river (a tributary of the Syr Darya river), flows along the western and northern parts of the project site, situated approximately 2 km or more from the project site boundary.

### Utilities

In terms of existing utility infrastructure, there is a gas pipeline located to the west of the site, approximately 750 meters from the western boundary, aligned in a north-south orientation.

Additionally, there is an overhead transmission line (OHTL) and an unpaved access path originating from outside the site, crossing a minor section of the southwestern corner as indicated in Figure 2-22.

Located east, south, and west of the site are medium/low-voltage transmission systems and medium-voltage distribution lines. As outlined above, one of these electrical power lines traverses the southern tip of the site and will need to be relocated before the construction commences. Site visits have revealed that birds (storks) use the electrical pylons for nesting. In addition to the mentioned relocations, some of the overhead powerlines will need to be buried or relocated to mitigate the safety risk posed by birds to aircraft operations.

The main features surrounding the Project site are indicated in following figures (Figure 2-11 to Figure 2-17) and Table 2-1.

**Figure 2-11 Railway Line to the East of Project Site**

**Figure 2-12 Existing Public Road to South of the Project Site**

**Figure 2-13 Canal to the South of the Project Site**

**Figure 2-14 Residential Community to the South of the Project Site**

**Figure 2-15 Gas Pipeline to the West of the Project Site**

**Figure 2-16 Access Road and OHTL to the West of the Project Site**

**Figure 2-17 Chirchiq River**

## 2.6 Receptor Identification

Potential sensitive receptors have been identified based on initial site visit conducted during October 2024 and review of satellite images. The human receptors are listed in Table 2-1 and their locations including identified potential ecological receptors are indicated in Figure 2-18.

### 2.6.1 Human Receptors

Table 2-1 lists the identified human receptors that may be potentially affected by the planned construction and operation of the new airport. Individual identifiers are provided to each receptor for ease of reference.

**Table 2-1 Identified Closest Human Receptors (with distances to Project Boundary)**

| ID | Proximity to Project | Description |
|---|---|---|
| H1 | 70 m | Residential community |
| H2 | 2.14 km | Residential community |
| H3 | 1.2 km | Residential community |
| H4 | 430 m | Residential community |
| H5 | 710 m | Residential community |
| H6 | 1.8 km | Residential community |
| H7 | 2.7 km | Residential community |
| H8 | 1.1 km | Residential community |
| H9 | 4.4 km | Residential community |
| H10 | 3.6 km | Residential community |

| ID | Proximity to Project | Description |
|---|---|---|
| H11 | 4.6 km | Residential community |
| H12 | 1.9 km | Residential community |
| H13 | 3.8 km | Industrial / Commercial |
| H14 | 5.7 km | Residential community |
| H15 | 5.6 km | Residential community |
| H16 | 1.6 km | Residential community |
| H17 | 2.7 km | Residential community |
| H18 | 3 km | Residential community |
| H19 | 2.2 km | Industrial / Commercial |
| H20 | 975 m | Residential community |
| H21 | 1.3 km | Residential community |
| H22 | 4.1 km | Residential community |
| H23 | 5.5 km | Residential community |
| H24 | 3.3 km | Residential community |
| H25 | 3.7 km | Residential community |
| H 26 | 4.4 km | Residential community |
| H27 | 6.2 km | Residential community |
| H 28 | 5.9 km | Residential community |
| H 29 | 3.4 km | Residential community |
| H 30 | 3.2 km | Residential community |

### 2.6.2 Ecological Receptors

There are no Legally Protected Areas (National Parks, Nature Reserves, etc.) or Internationally Recognized Areas (Key Biodiversity Areas (KBAs), Important Bird and Biodiversity Areas (IBAs), etc.) that overlap with the Project site. In addition, review of online databases has not identified any such areas within the 10 km search radius.

During the site visit, the areas near the Project site were identified as modified habitats used for residential, commercial, industrial and agricultural purposes. Even though not a designated ecological area of importance, the Chirchiq river which is approximately 2 km to the west of the Project site is considered as an ecological receptor.

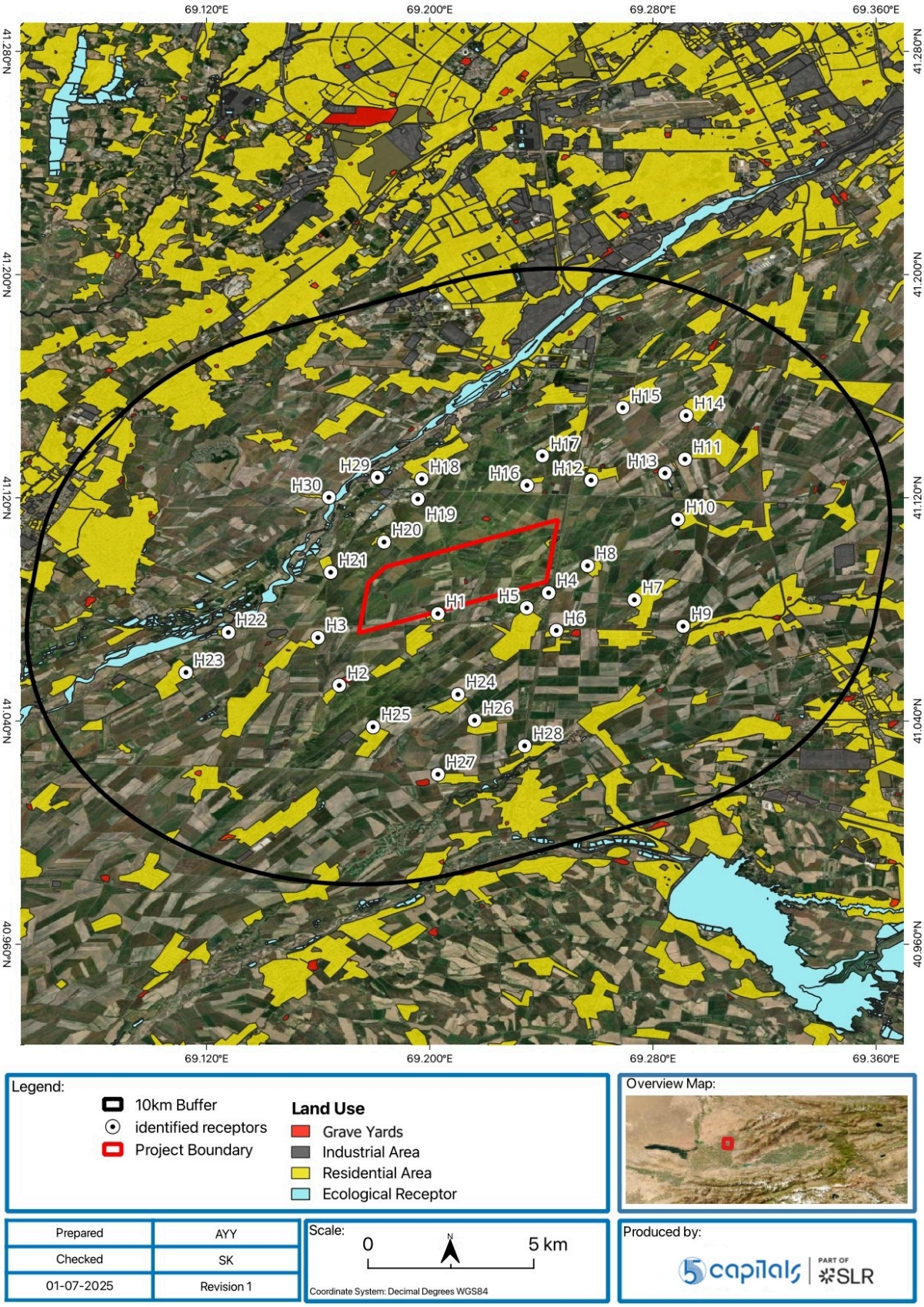



**Figure 2-18 Initial Receptor Identification**

### 2.6.3 Cultural and Archaeological Receptors

As outlined earlier in this report, four small areas within the Project site have been identified as graveyards, based on GIS data provided by the Client. Stakeholder consultations undertaken during the ESIA has shown that these graves belong to Muslim and Orthodox Christian communities

In addition to these, there are other active burial grounds in the vicinity of the Project site, the closest of which is located just south of the site boundary, approximately 230 metres away.

## 2.7 Project Facilities

The project facilities for the new airport include a wide range of components to support its operations. The main facilities feature: a passenger terminal, general aviation facilities (to be confirmed), a cargo facility, an aircraft maintenance facility, and parking and commercial areas.

The main support facilities include: a hotel (planned for future), fire training facilities, main and satellite RFF stations, an air traffic control tower, and various maintenance facilities. The project also encompasses essential utilities such as glycol storage, potable water and wastewater treatment, heating and cooling systems, a fuel farm, and a data centre.

Additionally, the airport will be equipped with navigational aids including surface movement radar, localizers, glide paths, and weather radar.

The runway system includes: two 4000-meter-long runways, taxiways, aircraft aprons, and a road network connecting the terminal and support areas. Special airport systems are also part of the infrastructure. These are presented with further details as following bulleted lists.

- **Main Facilities**
  - Passenger Terminal
  - Business and General Aviation (GA)Terminal
  - General Aviation facilities (to be confirmed)
  - Cargo Facility
  - Aircraft Maintenance Facility
  - Parking and Commercial Area
- **Support Facilities**
  - Hotel
  - Fire Training Facilities
  - Business Hanger
  - RFF Main Station
  - RFF Satellite Station
  - Air Traffic Control Tower
  - GSE Maintenance Facility
  - Airport Maintenance Facilities
- **Utilities**
  - Glycol Storage
  - Aircraft Sewage and Potable Water

- GSE Staging areas
- Potable Water Storage
- Potable and Wastewater Treatment
- Heating and Cooling
- Fire Water Tank
- Sub Stations
- APM Maintenance Station
- Data Centre
- Power Intake
- Fuel Farm
- Bowser Filling Station

- **Navigational Aids**
  - Surface movement radar
  - Localizer 24R
  - Glide Path 06L
  - VDB Antenna
  - Glide Path 24R
  - Localizer 06L
  - Weather Radar
  - PSR/SSR
  - Localizer 24L
  - Glide Path 06R
  - Glode Path 24L
  - Localizer 06R
- **Runway System**
  - 2x 4000 m long Runways with 1,700 m separation
  - Taxiway System and Aircraft Aprons
- **Road Network to the Terminal Area and to Support Area,**
- **Special Airport Systems**

## 2.8 Project Masterplan

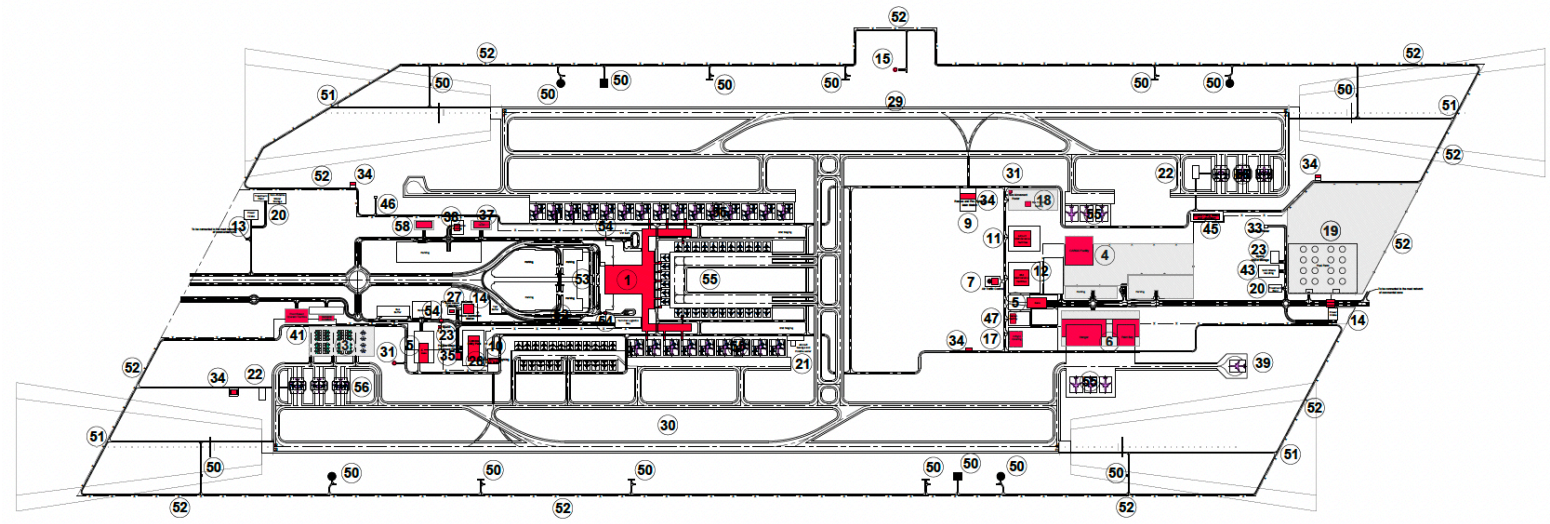
As outlines earlier in this report, the Project will be developed in phases, with the initial phase (which is the scope of this ESIA) designed to accommodate up to 20 MAP. However, certain infrastructure or facilities will have to be designed for the ultimate development stage right from the start.

The following sections present the salient features of the design of the Project, which is classified into different topics as follows:

- Airport Infrastructure
- Support Facilities
- Utilities
- Aviation Safety Features

In terms of the design, it should be noted that Uzbekistan is a member of the International Civil Aviation Organization (ICAO). For this reason, the regulatory framework set by ICAO will be used as the basis for the design of the aviation related facilities at the airport.

The Project masterplan is illustrated in Figure 2-19. The overall Project layout and surrounding infrastructure is shown in Figure 2-20.



LEGEND:

1. Passenger terminal (Including Presidential Apron)
2. Not Used
3. General Aviation facilities / Helipads (Including General Aviation Terminal, Not in EPC Scope)
4. Cargo terminals (Not in EPC Scope)
5. Gate
6. Aircraft maintenance facilties (Not in EPC Scope)
7. Air Traffic control (Shell & core)
8. Not Used
9. Rescue and Fire Fighting Main Station + AGL Substation (34)
10. Rescue and Fire Fighting Sub station
11. Airport maintenance facilities
12. GSE maintenance facilities (Shell & core)
13. Power Intake (1-nos)
14. Power Distribution Station (2-nos)
15. Doppler VHF Omni Directional Range (DVOR)
16. Not Used
17. In-flight Catering Facility (Not in EPC Scope)
18. Fire Training Facility (Not in EPC Scope)
19. Fuel Farm (Not in EPC Scope)
20. Wastewater Treatment Plant and Non-potable Water Storage (ug)
21. Aircraft Sewage and Potable Water
22. Glycol Storage
23. Spent Glycol Storage Facility
24. Not Used
25. Not Used
26. Common Utility Plant (Potable Water Storage + Fire Pump Room + Chiller Plant)
27. Solid Waste Collection
28. Not Used
29. Runway 1 (06L/24R)
30. Runway 2 (06R/24L)
31. Surface Movement Radar
32. Not Used
33. Weather Radar (Not in EPC Scope)
34. Airfield Ground Lighting Sub-Station (4 nos)
35. Potable Water Treatment Facility
36. Not Used
37. Hotel (Not in EPC Scope)
38. Administration Building + Secondary Data Centre + Main Operational Equipment Room + Main Equipment Room
39. Engine Run-Up Bay / Isolation pad
40. Not Used
41. Fixed Based Operator Facilties (Not in EPC Scope)
42. Not Used
43. Solid Waste Handling Facility
44. Not Used
45. Bowser Filling Station and Laboratory (Not in EPC Scope)
46. Bomb Disposal Unit
47. Meteo Facility
48. not used
49. not used
50. NavAids Equipment (Not in EPC Scope)
51. Crash Gate
52. Boundary Fence
53. Forecourt
54. Security Check Post
55. Apron
56. De-Icing Apron
57. not used
58. Training Center

Asset Not in EPC Scope

**Figure 2-19 Project Masterplan for Phase 1 (February 2026)**

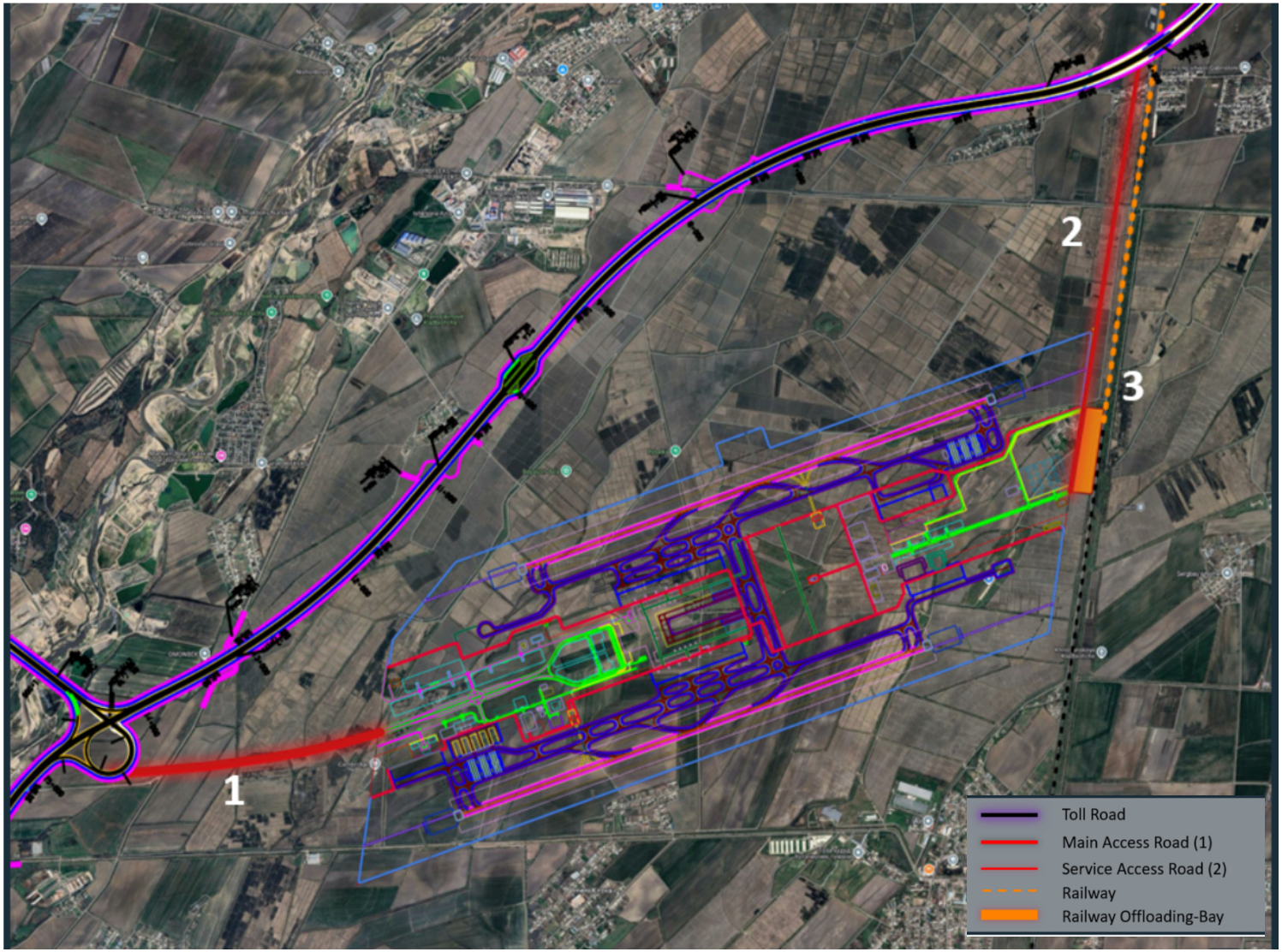



**Figure 2-20 Project Layout and Surrounding Infrastructure**

## 2.9 Aviation Safety and Obstacle Control

The Presidential Decree-353 prohibits any building or activities that could pose a risk to the airport infrastructure from being located within the adjacent area. Additionally, the Tashkent Regional Administration and the Ministry of Construction and Housing and Communal Services are responsible to ensure that the height parameters and placement of buildings and structures to be constructed at a specified distance from the new airport's aerodrome control point are coordinated with the Civil Aviation Agency (CAA) in accordance with the established procedure and complying with ICAO requirements.

As part of the airport planning process, the Project Sponsors undertook consultation with the CAA during the site selection and master planning stage. A meeting was held with the CAA in July 2024 to confirm that the proposed airport site and master plan were aligned with aviation safety and operational requirements, including considerations related to the Aviation Safety Zone (ASZ). The clearance of existing obstacles located outside the EPC Contractor's scope will be managed by the relevant responsible authorities.

All buildings and structures to be constructed at the specified distance from the new airport must obtain permits for their height parameters through the process outlined in Appendix 51 of the Unified Regulations on the submission procedures for certain documents approved by the Cabinet of Ministers' Resolution No. 86, dated February 22, 2022, using the Special electronic system. The process for granting permits for activities that could jeopardize flight safety will be carried out based on the rules and conditions set by the permit issuance procedure. As per the Order of Cabinet Minister, approval from Uzbek Airport Authority and the CAA is required before the local administration office or the Kokhimiyat can issue building permit to the developer who intends to carry out any development activities in vicinity of the airport.

An Obstacle Survey (see Figure 2-21) was conducted during the Master Plan development phase within a 10 km radius of the proposed airport to identify existing and potential obstacles that could affect aircraft operations. Based on this assessment, aviation safety at and around the airport will be managed through the application of Obstacle Limitation Surfaces (OLS), which define height restrictions for structures, antennas, vegetation, and other objects in the vicinity of the aerodrome. The obstacle survey undertaken for the Project identified existing Overhead Transmission Lines (OHTL) within and surrounding the site that may penetrate protected airspace. OHTLs were identified passing through the southwestern corner of the Project site and two separate short sections outside of the site, to the south and east of the Project site. These features are presented in Figure 2-22 and are planned to be removed by the responsible authorities as part of the broader airport development programme to ensure compliance with aviation safety requirements.

While no fixed health or safety buffer zones restricting land use have been established around the airport, height limitations apply, and no object may penetrate the OLS in accordance with applicable aviation regulations. A review of the published Aviation Rules of the Republic of Uzbekistan, available through the CAA, confirms that national requirements focus primarily on flight safety considerations, including obstacle control and aerodrome safeguarding, consistent with ICAO Annex 14.

No explicit CAA-issued standards or guidance currently define health protection zones or residential exclusion areas around airports or along approach and take-off flight paths. Accordingly, aviation-related safety precautions for the project are centered on compliance with obstacle limitation requirements and height control measures to ensure safe aircraft operations, rather than land-use or community health buffer zones.

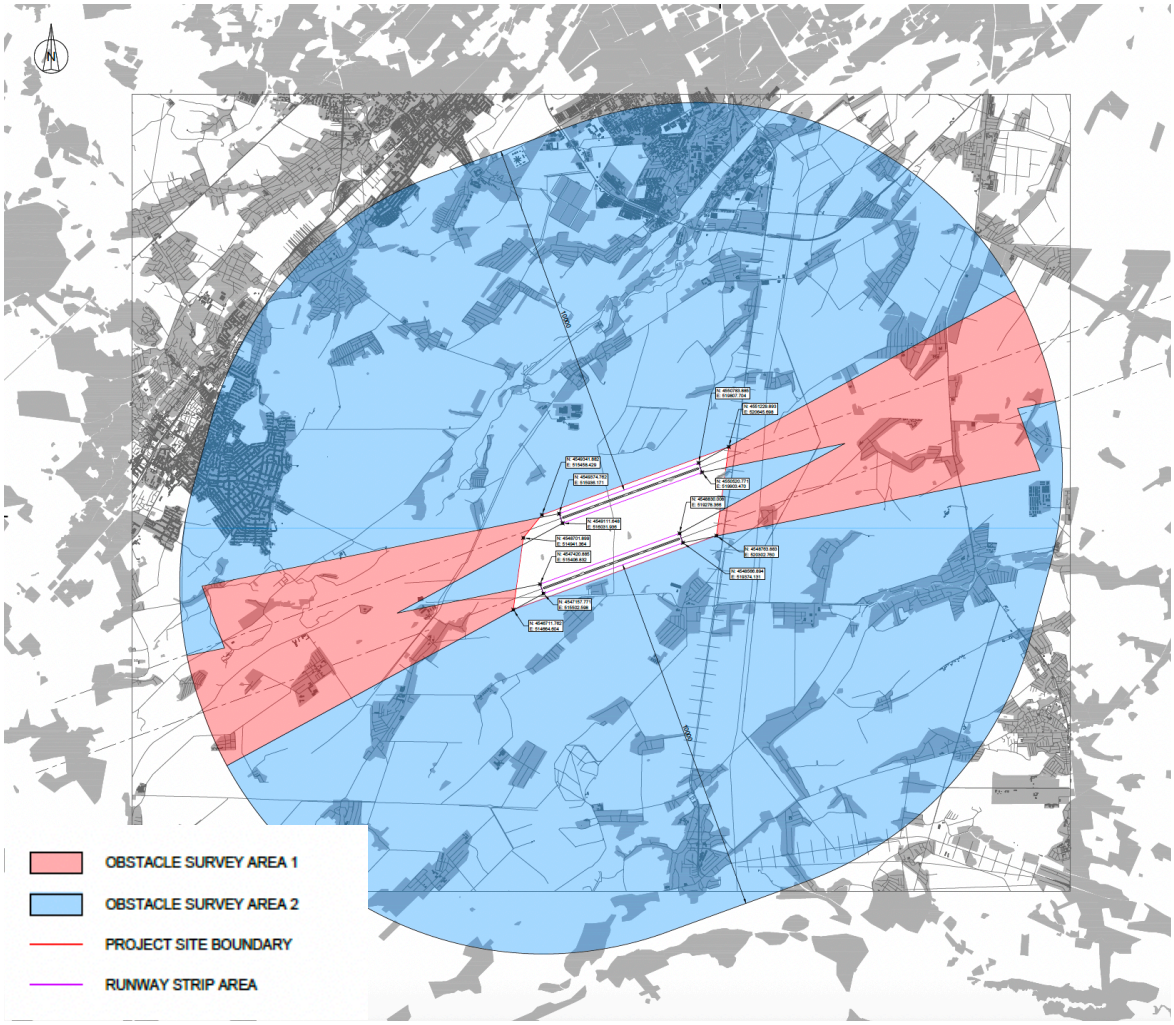



**Figure 2-21 Aviation Obstacle Survey**

Aviation safeguarding will consider not only physical obstacles to aircraft operations but also land uses and activities within the ASZ that could create potential hazards to aircraft operations. It will consider the applicable aviation safeguarding requirements, including the potential for existing and future land uses to interfere with aircraft operations, create physical or visual obstructions, attract birds or other wildlife, or otherwise affect aviation safety.

Agricultural activities are not expected to be generally prohibited within the ASZ. However, specific agricultural land uses or practices may be subject to aviation safety controls where they have the potential to create a hazard to aircraft operations. These may include, but are not necessarily limited to:

- Activities that attract birds or other wildlife, including land uses that provide food, nesting or roosting opportunities, or other conditions that could increase bird/wildlife strike risk;
- Planting of tall vegetation, trees or orchards that could, as they mature, penetrate applicable obstacle limitation surfaces or otherwise interfere with aircraft operations;
- Creation or expansion of large or persistent water bodies, including irrigation ponds, reservoirs or other standing-water features, where these could attract birds or other wildlife;

- Agricultural burning, crop residue burning or other activities that generate smoke, dust or atmospheric obscuration and could reduce visibility or otherwise affect aircraft operations;
- Other activities or structures associated with agricultural land use that may create physical obstacles, visual hazards or other aviation-safety risks, including temporary structures or equipment where relevant.

The applicability and extent of such controls will depend on the location, nature and scale of the activity and its relationship to the airport's operational areas and applicable safeguarding surfaces. The ASZ will therefore not necessarily impose a blanket restriction on land use; rather, land uses and activities will be subject to screening and, where necessary, specific controls or conditions to ensure that aviation safety is maintained.

The identified requirements will be addressed through the applicable aviation safeguarding, land-use planning, development control and permitting processes, in coordination with the CAA, Uzbek Airports Authority and other relevant government authorities. Where proposed developments or changes in land use have the potential to affect aviation safety, the relevant authorities will determine the applicable requirements, including any restrictions, conditions or approvals required before the activity can proceed.

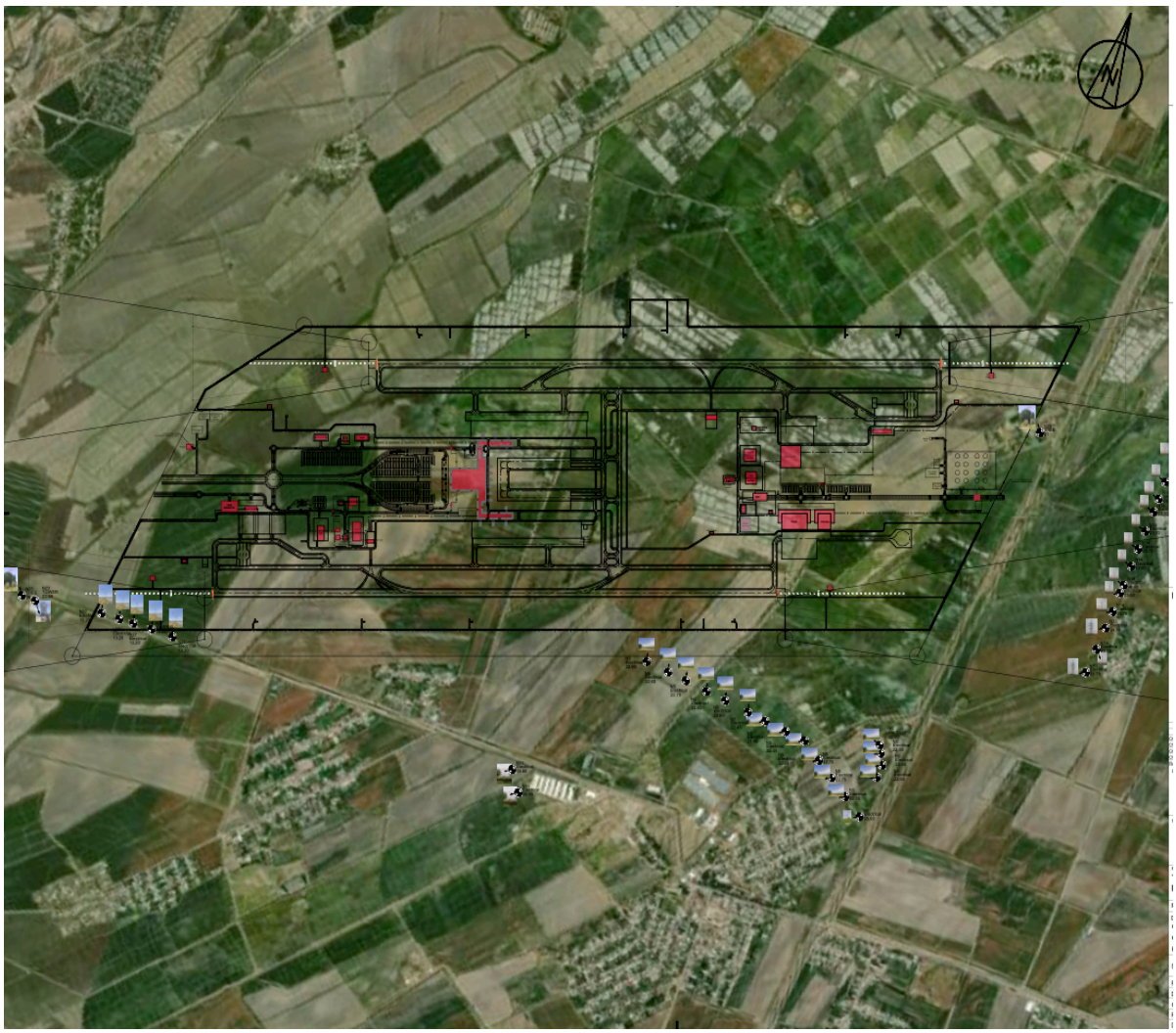


**Figure 2-22 Existing OHTL Identified within Project Area (Obstacle Survey)**

## 2.10 Sanitary Protection Zone

SanPiN No. 0103-25 defines the SPZ as a territory intended to ensure that concentrations of atmospheric pollutants and levels of physical factors, including aircraft noise, are reduced to permissible levels for residential areas. Additional applicable standards include permissible environmental noise levels (SanPiN 0008-20), atmospheric pollutant concentrations (SanPiN 0053-23) and requirements for radio-technical structures (SanPiN 0019-21).

Noise has been a key consideration in both the airport siting assessment and the determination of the Sanitary Protection Zone (SPZ). Multiple technical consultations were undertaken with the Committee for Sanitary and Epidemiological Welfare and Public Health during the ESIA process to agree an appropriate methodology for establishing the SPZ. During meetings held between the Project team and Committee officials on 17 April 2026, and subsequently on 30 April 2026 with the Chairman of the Committee (also attended by representatives of the lenders), the competent authority confirmed that the SPZ should be established based on a project-specific assessment, taking into account aircraft noise modelling, runway configuration, flight procedures, operational characteristics and the distribution of sensitive receptors, rather than by applying generic separation distances. This approach is also consistent with the general regulatory approach for airport SPZs, whereby the boundary is supported by technical calculations based on expected airport impacts, including forecast aircraft movements, runway configuration, aircraft types and operating characteristics.

Following these consultations, the Committee for Sanitary and Epidemiological Welfare and Public Health has issued a formal Conclusion on the Establishment of the Sanitary Protection Zone (SPZ) for the Project which is included in the Appendix 2. The conclusion establishes the SPZ along the outer contour of the 60 dB (LAeq) aircraft noise contour, based on project-specific predictive aircraft noise modelling undertaken using internationally recognised methodologies and conservative operational assumptions. The assessment considered projected flight activity, aircraft characteristics, airport operating modes and the surrounding land uses.

The approved 60 dB SPZ contour is located very close to the Project site boundary. Importantly, the area enclosed by the approved 60 dB SPZ does not contain residential receptors. The absence of residential receptors within the approved SPZ is a significant factor in the assessment of potential sanitary and land-use impacts and means that establishment of the SPZ does not, in itself, require additional residential displacement or relocation.

The SPZ conclusion further defines a series of management zones based on predicted aircraft noise levels. Areas below 60 dB are considered a potentially permissible impact zone requiring targeted monitoring and possible noise mitigation measures, where appropriate, the 60–65 dB contour is designated as a controlled impact zone requiring implementation of noise reduction measures, while areas above 65 dB may be subject to additional sanitary, planning and organisational measures in accordance with national legislation.

The SPZ should be distinguished from other regulatory and planning controls that may apply around an airport, including aircraft-noise management zones, aerodrome and airport safety zones, obstacle limitation surfaces and wider land-use planning controls. These mechanisms have different purposes but will operate together to prevent incompatible development and manage exposure to airport-related impacts. The regulatory framework therefore provides for land-use restrictions and/or controls on sensitive development, including residential development and facilities such as schools, hospitals and kindergartens, where warranted by the applicable noise and sanitary criteria.

Based on the opening year and future operational aircraft noise modelling undertaken as part of this ESIA, establishment of the SPZ along the approved 60 dB contour does not result in any additional physical displacement beyond that already identified for the Project footprint. As noted above, the 60 dB SPZ is located close to the Project site boundary, and no residential

receptors are present within the approved SPZ. Consequently, no additional residential acquisition is currently anticipated as a consequence of the approved SPZ. Should future refinements to airport design or operations result in changes to the approved SPZ boundary or associated land-use restrictions, any resulting economic or physical displacement will be managed in accordance with the Resettlement Policy Framework (RPF) and applicable lender requirements.

The SPZ conclusion recognises that aircraft noise modelling may be refined as the airport design and operational parameters are further developed, including updates to flight procedures, aircraft fleet mix and operational assumptions. Accordingly, further aircraft noise modelling will be undertaken during the detailed design stage to confirm compliance with applicable national requirements and international lender commitments, with the SPZ being refined where necessary in accordance with the procedures established under national legislation.

Implementation of the SPZ will involve:

- Refinement of aircraft noise modelling as the airport design and operational assumptions are finalised
- Implementation of operational and technological noise mitigation measures where required
- Operational noise monitoring in accordance with the approved monitoring programme
- Periodic review of the SPZ should future design or operational changes materially alter the predicted aircraft noise environment.

Responsibility for establishing and enforcing the SPZ, including any associated land-use restrictions, rests with the Committee for Sanitary and Epidemiological Welfare and Public Health in coordination with other competent state authorities including the Kokhimiyat and the Ministry of Construction in accordance with national legislation. The Project Company will be responsible for undertaking the required aircraft noise modelling, implementing operational noise monitoring, demonstrating compliance with applicable standards, implementing project-specific noise mitigation measures where required, and providing monitoring information to the competent authorities to support their regulatory oversight.

On this basis, the ESIA concludes that the SPZ for the Project has been established using a project-specific, risk-based aircraft noise contour approach supported by detailed modelling and consultation with the competent authorities, rather than the application of generic separation distances.

The relationship between the SPZ approval and other environmental, sanitary and planning approvals, including the applicable ZVOS process, will be managed through the relevant national regulatory procedures. The SPZ is a sanitary/planning control established by the competent sanitary authorities and should not be considered a substitute for other environmental or planning approvals applicable to the Project. Where subsequent project approvals or design changes have implications for the approved SPZ, the Project Company will provide the relevant technical information to the competent authorities and comply with any resulting requirements.

Implementation of the SPZ will be an ongoing regulatory process throughout the operational life of the airport rather than a one-off approval. The SPV will periodically review the operational aircraft noise environment through the Airport Noise Management Framework, incorporating operational noise monitoring, updated aircraft movement data, fleet composition and any changes to flight procedures or airport infrastructure. Where these reviews identify material changes to the aircraft noise environment, updated aircraft noise modelling will be undertaken and submitted to the Committee for Sanitary and Epidemiological Welfare and Public Health for review. Any revision to the approved SPZ, together with any associated land-

use planning or management measures, will be determined by the competent authorities in accordance with the applicable national legislative process. The Project Company will implement any project-specific mitigation measures and monitoring requirements arising from this process and will continue to provide the technical information required to support the competent authorities in the ongoing administration and enforcement of the SPZ. The Project Company does not have authority to impose or enforce restrictions on third-party land development outside its legal control; its role is instead to provide the technical information and monitoring results required by the competent authorities and to implement project-specific measures within the Project's area of responsibility. However, The Project Company will also continue to engage with the relevant planning and local authorities, where appropriate, to support maintenance of the approved SPZ within the wider land-use planning framework. This will be particularly relevant if future development proposals arise in or immediately adjacent to the SPZ. Any proposed development that could result in incompatible land use within the SPZ would remain subject to the applicable national sanitary, planning and permitting requirements administered by the competent authorities.

## 2.11 Public Safety Zone

The Project will consider public and community safety risks associated with airport operations through appropriate airport side safety measures, land-use planning considerations and coordination with the relevant aviation, planning, local government and emergency-response authorities. The Public Safety Zone (PSZ) is intended as a land-use planning measure to protect people and communities from risks associated with aircraft taking off and landing, including aircraft accident risk, particularly in areas beyond the ends of the runways. The PSZ is not an ICAO-defined zone and, unlike the ASZ, is not governed by ICAO requirements. It will need to be developed in consultation with the relevant aviation, planning and local authorities as a public safety measure..The formal national regulatory basis, delineation methodology and approval mechanism for a standalone PSZ have not yet been fully confirmed. The Project therefore does not currently assume a formally established PSZ or prescribe specific land-use restrictions. Instead, the Project will support the relevant aviation, planning, local government and other competent authorities in developing an appropriate framework, taking into account the airport's operational characteristics, accident risk considerations, surrounding land uses and population distribution, as well as applicable national requirements and relevant international good practice.

Once a PSZ framework is formally established and approved, the applicable controls and requirements would be incorporated into land-use planning, development control, zoning, cadastral and permitting processes, particularly in locations where the type, density or scale of development could increase potential public-safety consequences associated with airport operations. Depending on the methodology and requirements established by the competent authorities, controls could include restrictions or conditions on certain land uses or high concentrations of people, development density or occupancy, and requirements for appropriate access, signage, emergency preparedness or other public-safety measures.

Potential PSZ considerations may be particularly relevant to residential development, schools and other facilities accommodating vulnerable populations, hospitals and healthcare facilities, public assembly areas, high-occupancy commercial or institutional developments, and other uses where a large number of people could be exposed to aircraft accident risk. The applicability of any such controls would be determined by the competent authorities based on the formally adopted PSZ methodology and risk criteria and would not constitute a blanket restriction on development outside the airport.

Depending on the requirements established by the competent authorities, and where appropriate with reference to relevant ICAO guidance and good international practice, PSZ related measures may include land-use and development controls, appropriate access and safety signage, community awareness and information, emergency response planning,

coordination with local emergency and public-safety authorities, and consideration of evacuation or emergency access requirements.

## 2.12 Process for Establishment and Implementation of the SPZ, ASZ and PSZ

The establishment and implementation of the SPZ, ASZ and PSZ will require coordination between the Private Partner (i.e., the SPV), Public Partner and relevant Government of Uzbekistan (GoU) authorities. The formal regulatory basis, delineation methodology, approval arrangements and detailed controls for the three zones remain subject to confirmation by the competent authorities.

The process currently understood is as follows:

1. **Provision of technical information**: The Private Partner will provide the relevant technical information and assessment outputs to the GoU, including noise modelling contours, updated air dispersion modelling and relevant airport operational information.
2. **Government guidance and criteria**: Relevant GoU agencies will establish and/or confirm the applicable regulatory requirements, criteria and methodologies for development of the SPZ, ASZ and PSZ, including applicable land-use and development controls.
3. **Zone delineation and mapping**: Based on the confirmed requirements and Project information, the relevant GoU agencies will prepare airport-specific SPZ, ASZ and PSZ maps, identifying the boundaries and applicable restrictions, conditions or prescriptions within each zone.
4. **Cadastral integration**: The approved zone boundaries and applicable requirements will be incorporated into relevant cadastral maps and land records, allowing restrictions or conditions to be identified against affected land parcels.
5. **Planning and permitting**: The relevant requirements will be integrated into construction, development and land-use change permitting processes, with the competent authorities applying the applicable controls when reviewing proposals within the designated zones.

The concerned GoU authorities will be responsible for implementation and enforcement of the applicable controls. The Private Partner will provide technical support and updated information where required.

### 2.12.1 Project Context and Technical Basis

For the new Tashkent International Airport, applying a fixed 30 km SPZ is not feasible due to the existing regional context, urban development patterns, and the strategic siting of the airport. In line with the agency’s written response, the project therefore relies on technical modelling to define a scientifically based SPZ.

The project has already conducted detailed noise modelling and atmospheric dispersion modelling. Results are provided in the Noise and Air Quality chapters of this ESIA.

The agency’s response also indicates that additional clarification may be provided during ongoing discussions concerning compliance with sanitary-epidemiological requirements for the protection of public health. This confirms that SPZ determination is an iterative process to be finalised through engagement with the Committee for Sanitary and Epidemiological Welfare and Public Health, the Ministry of Health, and other relevant authorities based on confirmed airport operational details including confirmed Air Traffic Movement (ATM) and flight path information.

The final SPZ will therefore be agreed through continued regulatory consultation, supported by completed updated technical modelling and aligned with both national sanitary-epidemiological frameworks and international environmental and social standards.

The new airport is intended to replace the existing airport. The operational noise assessment, SPZ development, and associated impact assessments have been undertaken on the basis that airport operations will transfer from the existing airport to the new airport following commissioning of the new facility.

## 2.13 Aircraft Types

The airport will be designed to accommodate the types of aircrafts outlined in the following sections.

### 2.13.1 Fixed Wing

For the new Tashkent International Airport, Code Number 4 has been selected because the reference field length of the aeroplanes operating at the new airport exceeds 1,800 meters. In line with the Project masterplan (NACO, 2024), the airfield geometry will be designed for ICAO Code E aircraft. However, the design geometry will also allow occasional Code F operations and will accommodate the folding wingtip (FWT) system of the Boeing 777-9.

To simplify the process of aligning airport facility characteristics with those of the aircraft intended to operate at the airport, the Aerodrome Reference Codes, as per ICAO standards, will be used. These are presented in Table 2-2.

**Table 2-2 Aerodrome Reference Code (ICAO – Annex 14 Volume I, 2022)**

| Code | Wing Span | Outer Main Gear Wheel Span |
|---|---|---|
| A | Up to but not including 15m | Up to but not including 4.5m |
| B | 15m up to but not including 24m | 4.5m up to but not including 6m |
| C | 24m up to but not including 36m | 6m up to but not including 9m |
| D | 36m up to but not including 52m | 9m up to but not including 14m |
| E | 52m up to but not including 65m | 9m up to but not including 14m |
| F | 65m up to but not including 80m | 14m up to but not including 16m |

### 2.13.2 Rotary Wing

Helicopter operations are part of General Aviation traffic. The design of the airside infrastructure follows the design standards and recommendations outlined in ICAO Annex 14. Helicopters will use the main runways for landing and take-off manoeuvres, as the general aviation apron designated for these aircraft will not be able to provide the Final Approach and Take-off (FATO) area.

The helicopter stands will be sized to accommodate the following types of helicopters (see Figure 2-23), with D-values in accordance with ICAO DOC 9261 - Heliport Manual, 5th edition, 2021, Table II-6-1.

- Mil Mi-8 D = 25.4m
- Airbus H-125 D = 13.0m
- Airbus H-130 D = 12.6m
- Airbus H-145 D = 13.7m

**Figure 2-23 Mil Mi-8 and Airbus H-130**

The helicopter apron will be designed with a D-value of 14 meters, accommodating most of the intended helicopter types. Additionally, a specific section of the helicopter apron will be designed with a D-value of 25.4 meters to accommodate the largest helicopter types. The helicopter stands will generally be spaced to allow for dependent hover-turn operations.

## 2.14 Airside Design Details

### 2.14.1 Airport infrastructure

**Runways**

The Aerodrome Reference Code for the new airport has been established at 4E, allowing occasional usage by Code 4F aircraft (see Figure 2-24). In accordance with the relevant ICAO Aerodrome Design Manual, the code number is determined based on the highest aeroplane reference field length among the aircraft for which the runway is intended. The aeroplane reference field length is defined as the minimum length required for take-off at the maximum certified take-off mass, under sea-level, standard atmospheric conditions, still air, and zero runway slope, as specified in the relevant aeroplane flight manual or equivalent data from the manufacturer. The paved length between the runway extremities is 4,000 meters for each runway.

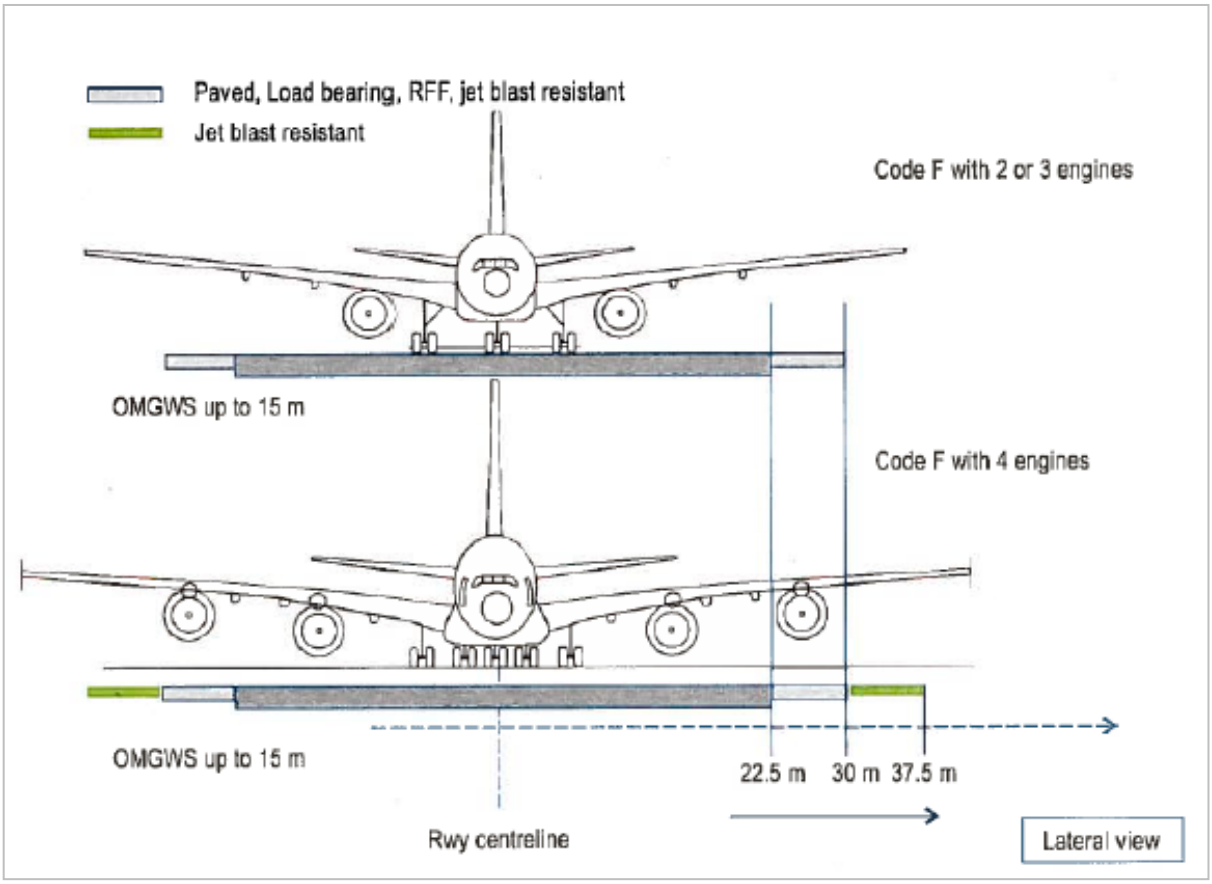



**Figure 2-24 Runway Width ICAO Code 4F**

### Taxiways

The taxiway geometry is designed in accordance with the ICAO requirements for Code E. This is in line with the air traffic forecast which does not reflect any Code F movements. However, it is anticipated that the airport will occasionally be used by Code F aircraft. In order to accommodate these occasional movements, the following approach is adopted for the taxiway geometry:

- Separation distances between runway and parallel taxiway, between two parallel taxiways and between dual cross-taxiways: Code F compliant;
- Wingtip clearance to objects for parallel and cross taxiways: Code F compliant;
- Taxiway width for parallel and cross taxiways: Code F compliant;
- Overall width of taxiway including shoulders: Code E compliant;
- Open drainage channels outside Code E taxiway strip, within Code F taxiway strip.

By applying the above geometry principles, the taxiways parallel to the runways and the cross taxiways will provide unrestricted movement of Code F aircraft to the commercial apron and cargo apron. The remaining aircraft manoeuvring areas, such as the apron taxiways and aircraft stand taxi lanes will be dedicated for Code E (or Code C) operations.

### Aprons

An apron provides dedicated space to park aircraft for the purpose of loading and unloading passengers, cargo or mail, fuelling, servicing, catering, over-night parking and/or maintenance.

The following types of aprons are planned for the Project:

- Commercial Apron
- Cargo Apron
- Maintenance Apron
- General Aviation & Rotary Wing Apron
- Aircraft Isolation Pad
- De-icing Apron

The Commercial and cargo aprons will be provided with a fuel hydrant network. The aircraft maintenance apron will be used for the parking of aircraft during Maintenance, Repair, and Overhaul (MRO) operations. The apron will accommodate up to ICAO Code E aircraft. While there will be no fuel hydrant network provided for the remaining aprons, the general aviation aprons will utilise fuel bowsers for fuelling activity.

**Engine Run Up Facility**

An engine run-up area has also been provided at the southeast end of the maintenance apron. An apron area of 130m x 100m has been designated for Code E aircraft, which is sufficient for conducting engine run-ups, typically undertaken by one aircraft at a time.

An engine run-up is necessary after certain types of maintenance procedures are performed on an aircraft. The aircraft will be towed to the planned location for the run-ups. At all times, the aircraft will be positioned to assure that the jet-blast from the back of the engine is directed away from any critical areas which are noise sensitive. Alternatively, if noise or jet blast is an issue, the jet blast could be shielded by means of jet blast barriers or concrete walls or sloped embankments. An example of an engine run up area is indicated in Figure 2-25.

This facility will also serve as an aircraft isolation pad to be used in case of any unlawful interferences requiring isolation from normal airport activities.

**Figure 2-25 Example of an Engine Run-up Area at Istanbul Ataturk Airport**

### 2.14.2 De-Icing

As described in ICAO document 9640 – “Manual of aircraft ground De-icing/Anti-icing operations”; *all aeroplanes are designed to fly clean. When an aeroplane is affected by snow, slush or ice a potential safety hazard exists. It is therefore imperative that take-off cannot be attempted unless it has been ascertained that all critical surfaces of the aeroplane and all*

*instrument probes are free of adhering snow, frost or ice formations. This vital requirement is known as clean aircraft concept (CAC)".*

In order to achieve the clean aircraft, the concept is to de-ice/anti-ice the aircraft prior to take-off. The de-icing/anti-icing process can take place at various locations on the airport; however, the following are the most common applied solutions:

- De-icing/Anti-icing on the aircraft stand at the terminal prior to departure.
- De-icing/Anti-icing on dedicated location(s) on the taxiway system prior to departure.
- De-icing/Anti-icing on dedicated de-icing aprons

Considering that the terminal building will be located centrally between both runways the average taxi distance between the terminal building and the departure thresholds is around 2,500m. Due to the relative long taxi distance it is decided that the de-icing/anti-icing operations will take place at dedicated de-icing aprons close to the thresholds. This is based on the assumption that powered up aircraft can be de-iced. De-icing apron's locations planned at the airport are indicated in Figure 2-26.

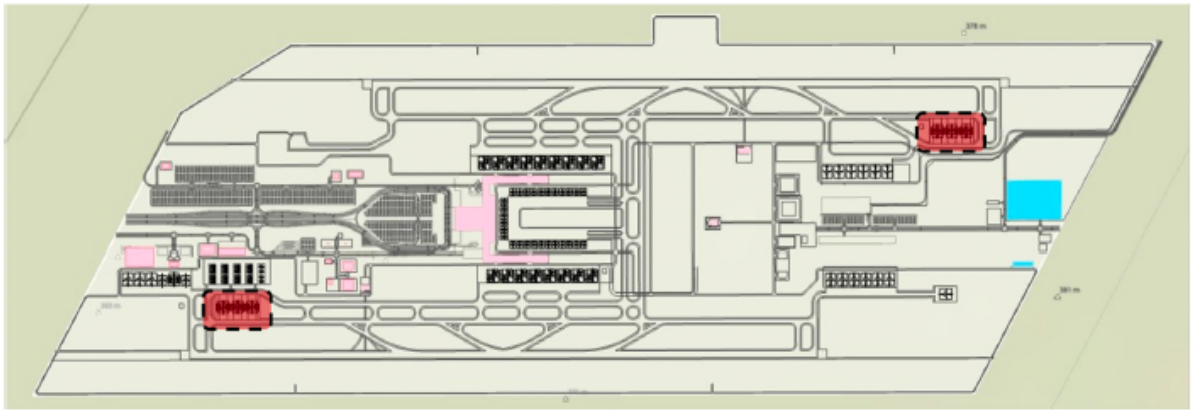


**Figure 2-26 Planned De-icing Aprons Locations**

### 2.14.3 Airside Service Roads

Airside service roads will provide access for Ground Support Equipment (GSE), such as catering trucks, ground handling equipment, maintenance vehicles, and buses, to apron stands and airside facilities. The design speed for these roads will be 30 km/h in apron areas and 50 km/h outside apron areas. In areas with space constraints, the design speed may be reduced for curves.

Additionally, a controlled perimeter access road, 6.0 meters wide, will run along the airport's perimeter fence. This road will allow two-way traffic for maintenance and security patrols around the site.

Airside roads leading to facilities and equipment will be designed for maintenance purposes. These roads will be 3.5 meters wide, considering their limited use and the types of maintenance vehicles anticipated.

### 2.14.4 Airside/Landside Perimeter Fence

The perimeter fencing system will consist of a combination of chain link or welded mesh fencing, concrete walls, and exterior walls of buildings along the airport's perimeter. The fence will be at least 4.0 meters high, topped with inclined barbed wire, and feature an anti-climb fabric for added security. The perimeter fence will be set back at least 5 meters from the perimeter road.

Additionally, a 3-meter-wide cleared area is recommended immediately outside the perimeter fencing. This area should be kept free of any objects that could aid climbing.

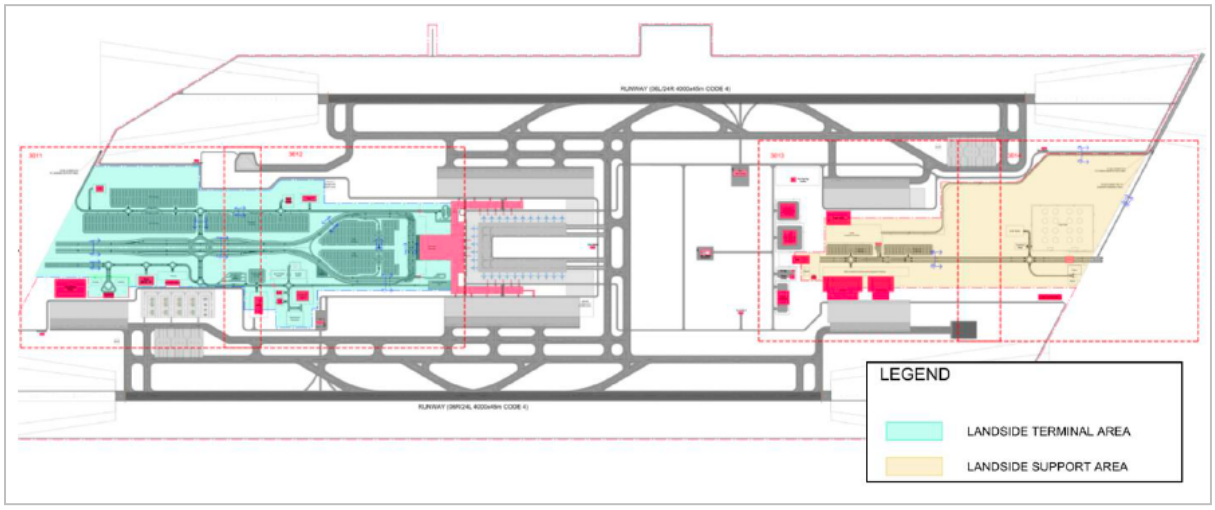
Controlled vehicle entry points/access gates will be placed at various locations to provide landside/airside access to the perimeter road.

## 2.15 Landslide Design Details

The landside design of the airport encompasses all infrastructure and facilities supporting passenger and vehicular movement outside the aircraft operations area. This section of the airport is critical in ensuring efficient access, circulation, and overall user experience for passengers and airport personnel. Following sections present the key information about the proposed design of the main landside facilities.

### 2.15.1 General Arrangement and Access to Terminal Area

The Landside Ground Access design strategy is to have quick access, minimise or eliminate conflicts and achieve optimal utilization of the proposed facilities. Design is based on the Master Plan layout which comprises of two main landside areas, as depicted in Figure 2-27. These areas include Landside Terminal Area on the West side of the site and Landside Support Area on the East side of the site. West and East landside areas are connected with the landside road running along the Airside-Landside fence on the north side of the site.




***Note**: Figure is indicative and subject to change*

**Figure 2-27 Landside Areas**

Access to the terminal building will be provided from the west side of the airport. The main road providing access to the airport from Tashkent Metropolitan will be the newly planned Toll Road.

The main access to the support area will be provided from the East overpassing existing railway positioned along the east edge of the selected site. It is foreseen that eastern access will have direct connection to either the newly planned Toll Road, or the existing A373, eventually providing access to wider Tashkent regional area.

**Landside Terminal Area**

The main access to the Landside Terminal Area is provided by a one-way loop road, offering direct access to the Terminal Forecourt, including the arrival curb, departure curb, and parking facilities near the Terminal Building.

Non-terminal-related traffic is separated at a central interchange. This grade-separated interchange allows access to the landside facilities located to the north, including long-term passenger (PAX) parking, employee parking, a hotel, administration building, and VIP curb. It also connects to the landside facilities to the south, which include the general aviation area, utility zone, terminal logistics area, bus buffer, and airside/landside gates.

**Landside Support Area**

Main access to the Landside Support Area is provided by the Support Area Spine Road. This road has a function of collector distributor road providing direct access to various support facilities including Cargo complex, MRO, Fuel Farm, Solid Waste Treatment, staff parking and Airside-Landside gates.

Landside Support Area is illustrated in Figure 2-28, depicting main landside facilities.

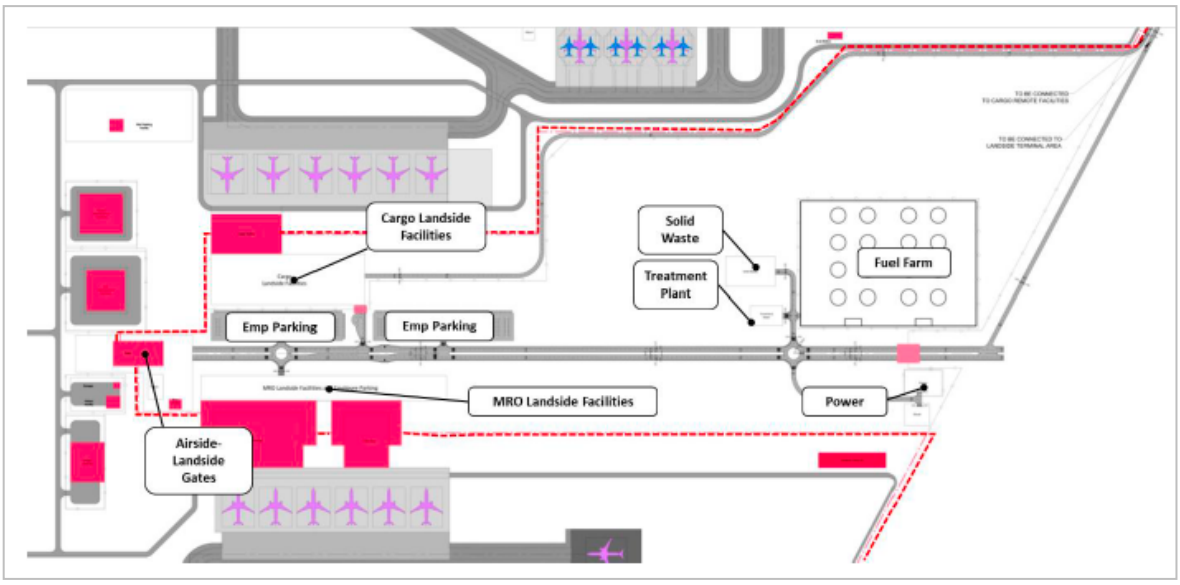



**Figure 2-28 Landside Support Area**

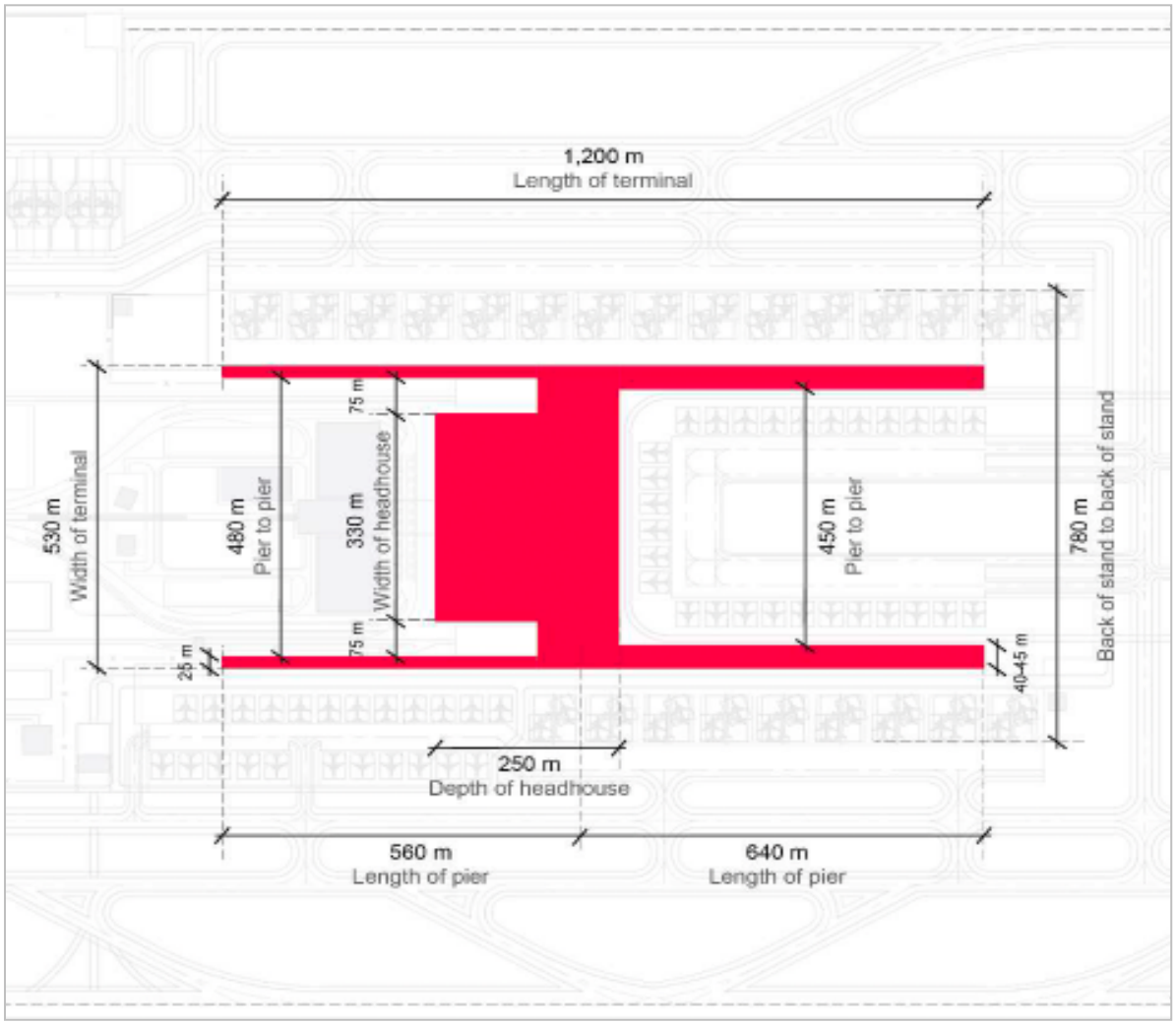
## 2.15.2 Passenger Terminal Building

This section presents the main elements and configuration of the passenger terminal building. The key input parameters for the terminal configuration are the future handling capacity in terms of passengers and flights. The first development phase of the passenger terminal building has a total Gross Floor Area (GFA) of approximately 208,364 $m^2$ including gate houses. As outlined earlier in this report, the terminal handling of the opening phase can accommodate up to 20 MAP which is equivalent to around 5,100 peak hour passengers.

The proposed terminal configuration is an H-shape with a central processor or headhouse[1] and four contact piers[2] (see Figure 2-29), each with a length of around 600 meters.

[1] The headhouse of an airport terminal building is the central area that serves as the main entry point and hub for passenger processing before they move to other parts of the terminal.

[2] A contact pier in an airport terminal is a structure extending from the main terminal building, allowing passengers to access multiple aircraft gates directly from a central area.




***Note**: This figure is for the ultimate phase. Dimensions mentioned are indicative and subject to change*

**Figure 2-29 Passenger Terminal Configuration and General Dimensions**

### Headhouse Levels

The terminal headhouse will have 5 floor levels as follows:

- Level 4: international business class lounge, offices, and MEP zone (mechanical/electrical/plumbing).
- Level 3: check-in, international departure controls (customs, emigration, security) and international airside departure lounge.
- Level 2: domestic departure controls (security), domestic airside departure lounge, and international arrival controls (immigration).
- Level 1: baggage reclaims, baggage handling area, arrival hall, and support functions incl. staff screening and storage & logistics.
- Basement: baggage conveyors connecting baggage off-load belts with the baggage reclaim carousels.

**Pier Levels**

All four contact piers will have 3 floor levels as follows:

- Level 3: Arrival corridors.
- Level 2: Departure (contact) gates.
- Level 1: Bus gate waiting areas, apron support, and (optional) bus gates at the gate houses of fixed links.

Typical section of the headhouse and pier is illustrated in Figure 2-30.

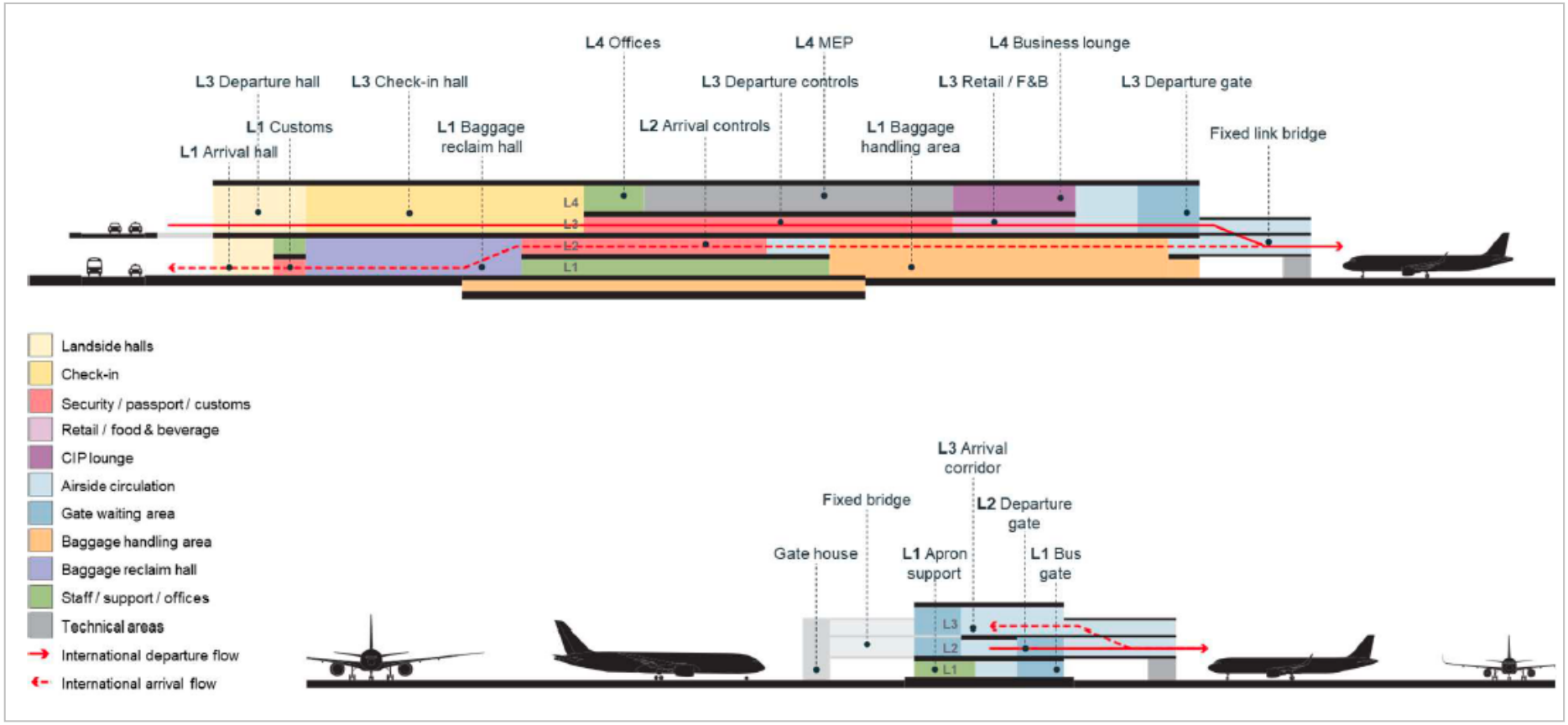



**Figure 2-30 Typical Section of Headhouse and Piers**

## 2.16 Airport Facilities

The following subsections presents the main airport facilities designed for the Project. References to earlier discussions in this report are provided for ease of understanding.

### 2.16.1 Main Facilities

Main facilities include the passenger terminal (refer section 2.10.2), where passengers travel through to be able to take their flights, cargo terminals, where goods are stored, processed and transported, maintenance areas for aircraft servicing and repairs, and general aviation facilities catering to private and small aircraft.

**Cargo Facilities**

The Project master plan includes a single first line general cargo handling facility proposed for the 2035 horizon with a footprint of 10,200 m². The placement for a first line general cargo terminal at the airport is along the landside-airside border. The planned location of the cargo facility is illustrated in Figure 2-31.

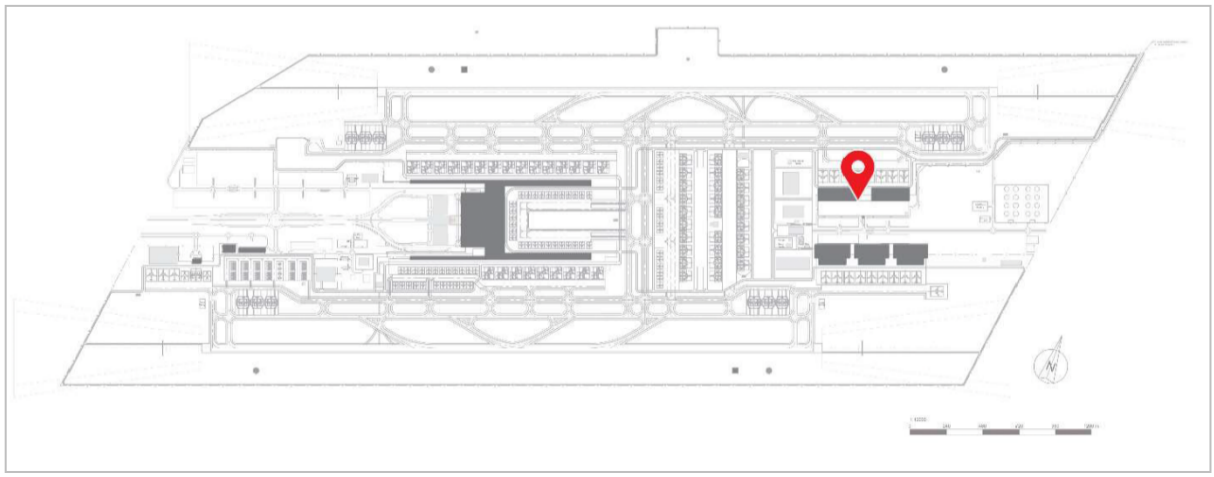


**Figure 2-31 Proposed Location of the Cargo Facility**

**Aircraft Maintenance Facilities**

To ensure aircraft operate within the specified limits set by manufacturers, airlines incorporate maintenance, repairs, and overhauls (MRO) as integral components of their operations at hub facilities.

The aircraft maintenance facilities are located in the southwestern corner of the airport support area. Adjacent to the hangars, the master plan includes a dedicated engine run-up bay, designed for engine testing. This facility allows for thorough evaluation of engine performance and identification of potential issues.

Figure 2-32 illustrates the location of the aircraft maintenance facilities in the master plan.

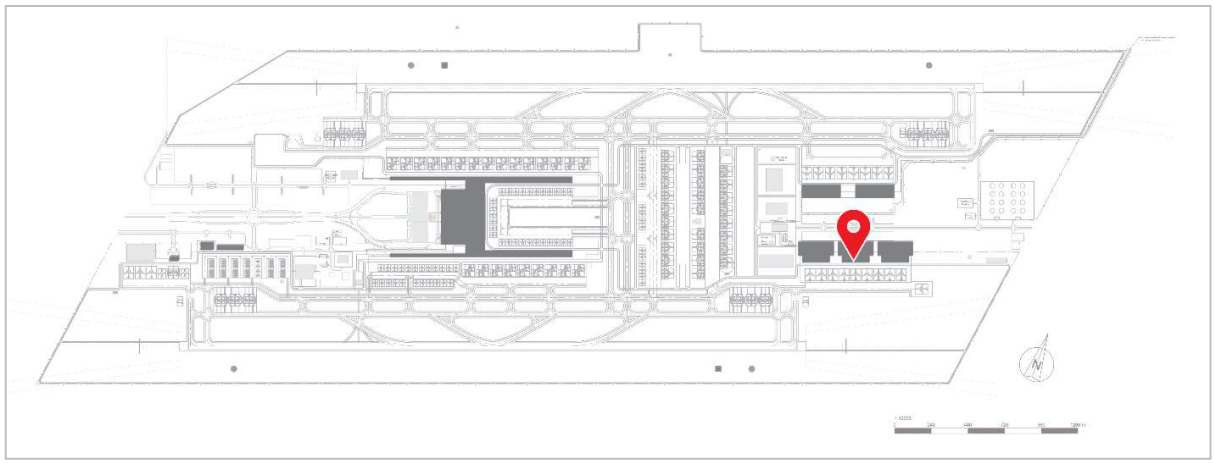


**Figure 2-32 Planned Location of the Aircraft Maintenance Area**

### General Aviation Facilities

The master plan layout includes a 5,200 m² general aviation terminal (to be confirmed) located on the west side of the terminal, adjacent to the general aviation apron. This positioning provides direct access to both landside and airside operations. To the north of the facility, a shared landside parking area is designated to serve both the general aviation terminal and the fixed-base operator (FBO) facility, situated on the west side of the general aviation area.

Additionally, the master plan reserves space on the east side of the general aviation facility to accommodate potential future expansions for services related to general aviation activities.

Figure 2-33 illustrates the location of the general aviation facilities within the master plan.

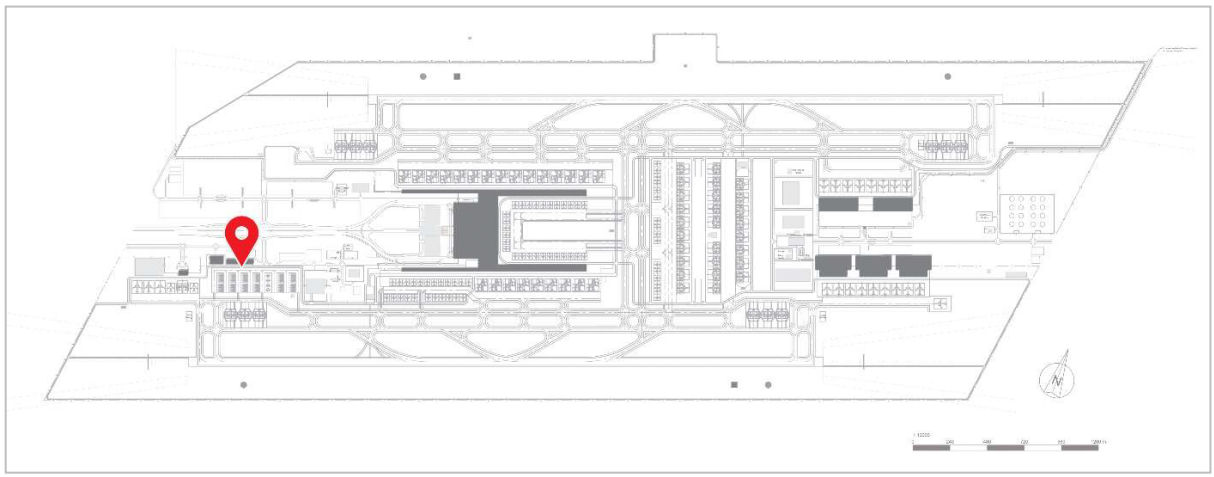


**Figure 2-33 Proposed Location of the General Aviation Facilities**

## 2.16.2 Support Facilities

Airport support facilities provide a wide range of essential services to ensure the efficient operation of airports. These include rescue and firefighting services, which ensure a prompt response to emergencies, and inflight catering facilities that deliver food services for passengers and crew. Ground support equipment and staging areas facilitate luggage handling, aircraft refuelling, and ground maintenance.

Airport maintenance facilities oversee the upkeep of infrastructure and equipment, ensuring safety and functionality. Consolidation centres manage the transfer of goods between airside

and landside operations. Police, security, and customs facilities play a crucial role in maintaining passenger safety and regulatory compliance.

Additionally, the airport includes hotel (planned for future) to provide convenience and accommodation for passengers. Together, these support facilities ensure the smooth functioning and safety of airport operations.

### 2.16.3 Utilities

Utilities are the essential systems and services that underpin an airport's infrastructure, enabling seamless operations, ensuring safety, and providing comfort for passengers and personnel. The efficient integration and functioning of these utilities are critical to supporting the diverse needs of the airport, from aircraft operations and passenger services to overall infrastructure functionality. As outlined earlier in this report, the scope and assessment presented in this ESIA is based on the Project's initial development phase (up to 20 MAP); however, certain utility infrastructure, including potable water supply and wastewater systems, have been designed from the outset to accommodate the ultimate masterplan capacity (up to 46 MAP) in order to avoid future reconfiguration and support long-term expansion.

An overview of the locations of utilities is illustrated in Figure 2-34.

This comprehensive network of utilities is vital for maintaining operational efficiency, upholding safety standards, and ensuring the smooth and secure movement of people and goods within the aviation industry.

The utility master plan establishes a framework to guide future strategic decision-making, incorporating strategies and concepts to support long-term planning. The utilities covered in this master plan include the following which are discussed further in the following sections:

- Electrical Power Supply
- Cooling & Heating
- Water Supply
- Wastewater
- Solid Waste
- Aviation Fuel
- De-Icing/Anti-Icing
- Telecommunications

Due to the location of the new airport as well as the lack of services in the area, most of the utilities will be fully or partly off-grid systems. This however excludes electrical power and fuel supply to the site. In addition, the airport is seen as a lifeline for aid and emergency services in a state of disaster (Seismic area). Considering this, a relatively high level of redundancy will be built into each of the utilities mentioned ensuring the airport can remain functional at all times.

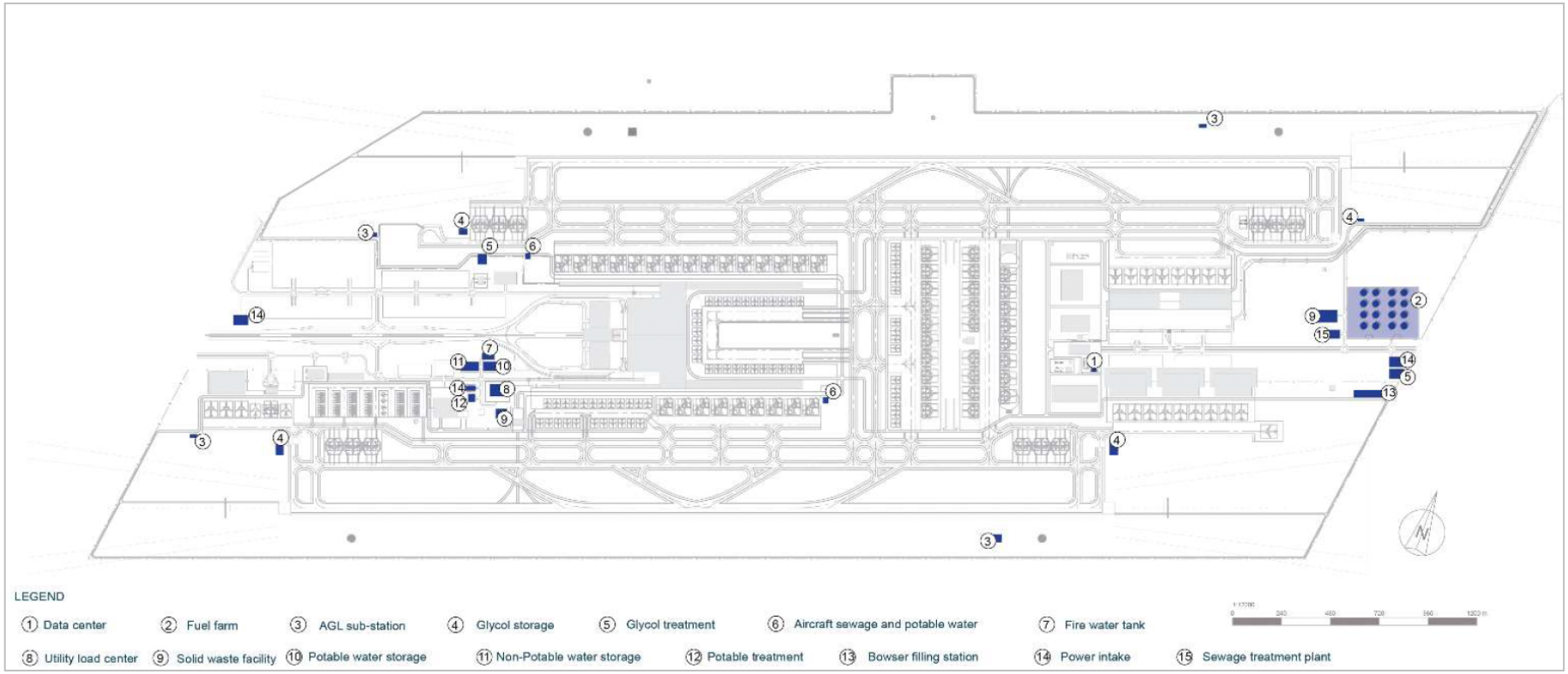



**Figure 2-34 Overview of Utilities**

### Electrical Power Supply

An initial power demand assessment was undertaken to facilitate early communication and coordination with the local utility grid network operator Regional Electrical Power Network (REPN). A wide range of power demands have been estimated which will be further refined as the design progresses.

The initial electrical demand is estimated to range from approximately 21MW up to 39 MW which is expected to increase to between 45 MW to 70 MW by the end of the ultimate airport development phase. It is estimated that approximately 75Million KWh (i.e.,75GWh) of power will be required annually during the initial years of operation of the airport. The proposed system overview of power supply and distribution system is illustrated in Figure 2-35.

The airport will primarily receive its electrical power supply from the local utility grid. A main substation and power intake facility will be built within the Project boundary which will be fed via a 110kV cable provided with the national utility provider. Additionally, it will have a secondary source of electrical power from a 4,000 KWp onsite photovoltaic (PV) plant located at the short-term parking area (see Figure 2-36), enhancing its energy resilience and sustainability. In case of emergencies, power will be supplied by an onsite central medium-voltage generator and several distributed low-voltage generator systems.

Solar power generated on-site will be connected to the airport's local grid network. If the detailed design assessment indicates that the yield exceeds the airport's demand, arrangements will be made to supply the surplus power to REPN grid and/or onsite battery storage.

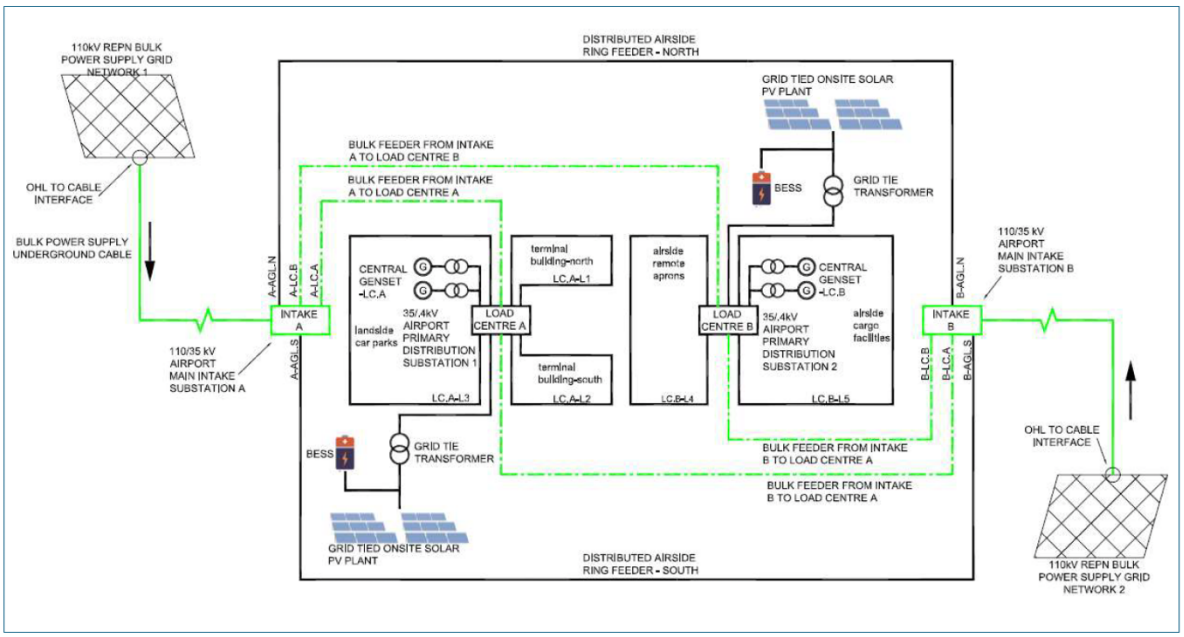



**Figure 2-35 Bulk Power Supply Concept for the Project**

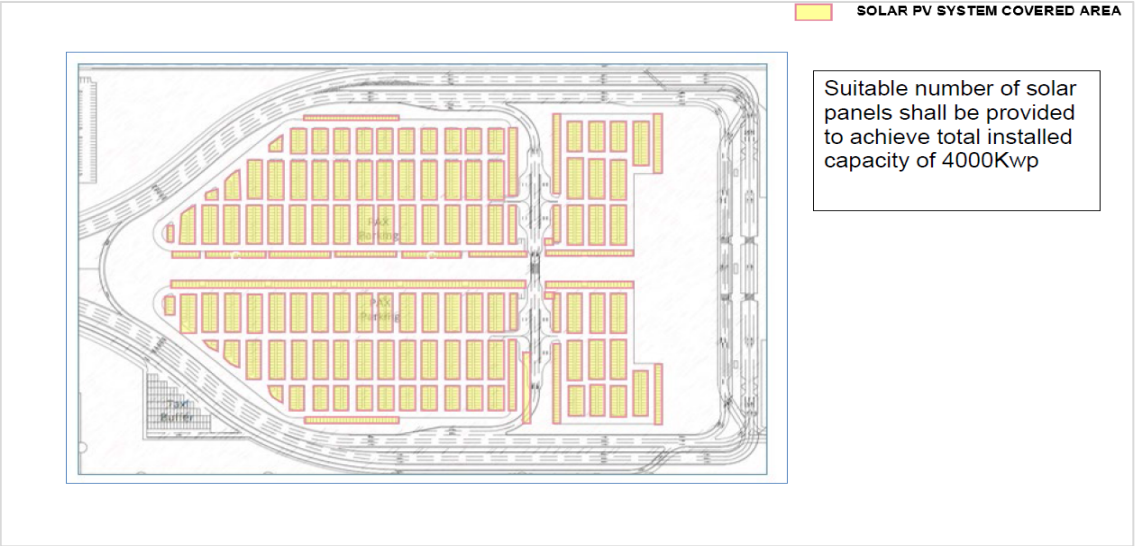



**Figure 2-36 Solar Panel System at Parking Area**

### Cooling and Heating

Due to the climatic conditions, all facilities at the airport will need to be heated and cooled. No cooling and heating infrastructure is available near the Project site. Therefore, dedicated infrastructure for cooling and heating of the new airport facilities will need to be developed. Passenger Terminal Building facilities within the airport will be connected to the central system for heating and cooling while the rest will be served by independent systems.

### Water Supply

Water Source

The Project site is situated in a rural area of the Tashkent province of Uzbekistan, surrounded by farmland. There is no existing utility-scale potable water infrastructure in the area that could be utilised. Surrounding the airport are several small farming villages that use groundwater as their primary water source. Raw water (non-potable water) sources in the area include surface water from irrigation canals, rivers, and streams. In addition, groundwater is also a potential raw water source.

Additionally, no plans have been identified to suggest that bulk water infrastructure will be installed in the foreseeable future, either before or beyond the Project timeline. Given these circumstances, a so-called ‘off-grid’ water supply system will need to be developed.

It is expected that the airport will be a catalyst for development in the area that surrounds the airport precinct. Bulk potable water supply infrastructure will inevitably be needed to meet these increased demands. Assuming the bulk supply will eventually be provided, an interim supply will be required.

During operation, the airport is estimated to require approximately 1,310 m³/day of potable water during the opening year, increasing to approximately 3,340 m³/day at the ultimate airport development. These estimates are preliminary planning-level values based on the current passenger forecasts and operational assumptions and will be refined during detailed design.

The current design proposes that the airport will obtain its water supply from a series of deep groundwater boreholes developed within the project area. Raw groundwater will be conveyed to a central Water Treatment Plant (WTP), where it will undergo conventional treatment comprising clarification, aeration, multimedia filtration and chlorination before being stored within central potable water storage tanks and distributed through a dedicated site-wide

potable water network. The system incorporates N+1 redundancy for boreholes and principal pumping equipment to maintain operational reliability, while the external potable water distribution network has been sized to accommodate both the opening phase and ultimate airport development. Separate non-potable water storage and distribution systems are also proposed to maximise the beneficial reuse of treated wastewater for irrigation, toilet flushing, aircraft washing, firefighting and other suitable operational purposes.

At the current stage of project development, detailed hydrogeological investigations are yet to be completed and the long-term regional bulk water supply strategy for the wider development area has not been finalised. Consequently, the proposed groundwater supply represents the current design basis for the opening phase, while the long-term water supply solution will be confirmed during detailed design. This process will include hydrogeological investigations to establish groundwater availability, sustainable abstraction rates and groundwater quality, together with ongoing consultation with the relevant authorities regarding the timing and availability of future regional bulk water supply infrastructure. The preferred long-term water supply strategy will be confirmed on the basis of these investigations and incorporated into the final design basis.

Water Treatment, Storage and Distribution

The raw water will be pumped from the from the wells to the WTP located within the airport precinct, where it will be treated such that, it meets international potable water quality standards. Treatment will include primary, secondary and tertiary treatment processes depending on the quality of raw water. The groundwater will also be used as a backup supply to the non-potable water storage tanks.

Once treated the potable water will be pumped to storage tanks. Necessary measures will be taken to prevent the water from freezing in the winter. A minimum of two days of storage, based on the annual average daily demand, will be provided.

The potable water from the tank will be supplied to all facilities within the airport precinct via the airport's potable water reticulation network. Figure 2-37 illustrates the operational schematic of the proposed potable water supply and distribution system.

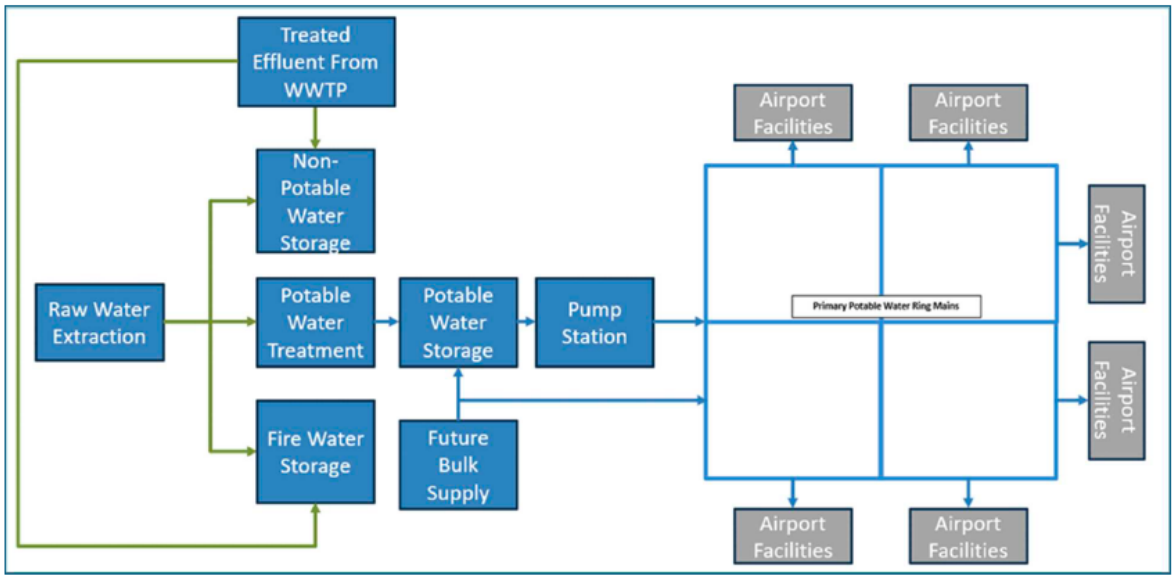



**Figure 2-37 Schematic of Potable Water Network**

Aircraft parked on the ground require their potable water tank(s) to be filled before departure. Potable water trucks will collect potable water from the dedicated potable water filling station located on airside and transport it to the aircraft where it will be pumped into the potable water tanks of the aircraft.

**Wastewater**

The Project is situated in a rural area surrounded by small farming villages. These villages are not connected to a water-borne sewage system or Wastewater Treatment Plant (WWTP). Septic tanks are used by the nearby communities to naturally treat the low volumes of wastewater they generate. As such a dedicated wastewater conveyance system will need to be developed to serve the new airport.

During operation, wastewater generated from temporary sanitary facilities, offices etc. will be collected and treated at a compact WWTP installed on-site. The installation, operation and discharge of effluents will be carried out in compliance with all applicable local permitting requirements and environmental regulations.

At the current stage of design, the wastewater generation rates represent preliminary planning level estimates developed to support the ESIA and utility planning. The estimates have been derived from the projected potable water demand using an assumed wastewater return factor of approximately 80%, recognising that a proportion of the potable water demand is consumed through irrigation, evaporation and other non-return uses. Based on the estimated potable water demand of 1,310 m³/day during the opening year and 3,340 m³/day during the ultimate phase, as outlined earlier, wastewater generation is estimated to be approximately 1,060 m³/day and 2,700 m³/day, respectively.

These estimates will be refined during detailed design as passenger demand, operational requirements, wastewater characteristics, treatment requirements, opportunities for treated effluent reuse, and final discharge arrangements are confirmed. The final WWTP capacity, treatment process and treated effluent management strategy will therefore be established during detailed design and documented in the final design basis.

A waterborne sanitation network will be used to convey wastewater generated at most of the airport facilities to the WWTP. However, wastewater from the aircraft sewage facility (Bluewater/titrator facility) which receives the wastewater from incoming aircraft as well as the runoff with concentrations of glycol from the de-icing aprons will be collected and treated outside of the airport facility via an approved third-party waste service provider. Glycol recovery vehicles (GRVs) will be deployed to reduce the concentration of glycol reaching the WWTP. A gravity sewer system will be used wherever possible to avoid operational and maintenance costs associated with pumping.

Facilities that are located in remote locations of the airport and which generate low volumes wastewater will be serviced by dedicated septic tanks, similar to how the remote facilities at the existing Tashkent International Airport currently operate. Desludging trucks will collect the contents when it is full and, thereafter transfer it to the on-site WWTP.

On-site WWTPs will be required on land side in the eastern and western part of the airport to avoid lifting stations and complicated sewage network. The WWTP will receive several types of wastewater from various locations within the airport, including but not limited to kitchens, restaurants, lavatories (aircraft and airport facilities), aircraft and ground vehicle washing and cleaning, aircraft maintenance and repair work, and spent de-icing fluids (if any). The WWTP will consist of a series of treatment stages that includes pre-treatment, secondary treatment, and tertiary treatment.

The wastewater from all the waterborne sanitation networks including from de-sludging trucks will be transferred to pre-treatment (for example screening, and sand-grit removal). After the pre-treatment, the wastewater will be collected in the equalization tank as a buffer, to reduce the fluctuations in the pollutant load and rate of the influent. From the equalization tank, a constant flow is transported to the secondary treatment (biological treatment), where the removal of organic pollutants occurs using biomass.

After secondary treatment, the wastewater will be transferred to the sedimentation process for separating sludge and treated effluent. The treated effluent will go to a clear water storage

tank, which can be discharged to a discharge point (e.g., surface water) or can be transferred to the tertiary treatment (for example sand/carbon filter, membrane filtration) for water reclamation.

The surplus sludge will be transferred to a Sludge Tank. The addition of polymer is needed in the Sludge Tank to assist the thickening process of the sludge which is then followed by a mechanical thickening and dewatering process. The supernatant water from the thickener will be returned to the equalization tank, while the sludge (which is hazardous solid waste) will be collected by an authorized agency.

The chosen WWTP options will aim to have a small footprint, and be able to meet the applicable effluent standard, and incorporate biological nutrient removal (removal of BOD, COD, ammonia, nitrate, phosphorus) which prevents eutrophication in discharge location i.e. surface water. The treatment system will be a closed system to avoid attracting birds or any hazardous wildlife (FAA. 2007. Hazardous Wildlife Attractants on/or Near Airports).

**Stormwater Management**

The Project has been designed with separate collection systems for stormwater, industrial wastewater and domestic wastewater to prevent cross-contamination and ensure that each wastewater stream is managed according to its characteristics and applicable treatment requirements. Untreated domestic or industrial wastewater will not be discharged to the stormwater drainage system.

The stormwater drainage network has been developed to provide organised collection and controlled discharge of runoff from both the airside and landside areas. For the eastern landside development, interface points have been established at the airside–landside boundary, with the landside drainage network connecting to these interface points before discharging through the dedicated airside stormwater system. For the western landside development, stormwater runoff will be conveyed directly to the designated stormwater outfall in accordance with the approved drainage strategy. The detailed hydraulic design includes assessment of stormwater runoff from the principal operational areas, including runways, taxiways, aprons, aircraft parking stands, landside roads, car parks, building roofs and other operational areas, to ensure adequate drainage capacity under the applicable design storm events. The current drainage strategy identifies defined interface flow rates and discharge locations for the integrated airport drainage network.

Runoff from operational areas with an elevated potential for contamination, including aircraft stands, fuelling facilities and maintenance areas, will be managed through dedicated collection and appropriate treatment measures prior to reuse or discharge. The detailed drainage design will also incorporate emergency isolation arrangements to enable containment of contaminated runoff arising from accidental fuel or chemical spills and prevent uncontrolled discharge to the surrounding drainage network.

The internal drainage infrastructure will collect runoff and convey it to treatment and control facilities, such as sediment traps, oil water separators, and retention or detention structures, where required. These measures will ensure that stormwater is free from notable contamination, including hydrocarbons, suspended solids, and other pollutants commonly associated with airport operations.

Only stormwater that meets relevant national environmental regulations and water quality discharge standards will be released from the site. Treated stormwater will be discharged via an external drainage system connected at the western boundary of the project site and directed to the Chirchiq River. This approach will prevent uncontrolled runoff, protect surface water quality, and ensure compliance with applicable environmental and water resource management requirements throughout both construction and operational phases of the airport.

The detailed design of the stormwater and wastewater systems, including runoff calculations, treatment processes, water quality monitoring requirements, emergency isolation measures and discharge criteria, will be finalised during the detailed design stage and implemented through the Operational Environmental and Social Management System.

**Solid Waste Management**

There is no solid waste infrastructure in close proximity to the proposed Project site. Therefore, dedicated infrastructure for the management of solid waste will need to be developed.

Construction activities such as site preparation, civil works, electrical and mechanical works, materials delivery, operation of labour camps will generate non-hazardous and hazardous waste streams. The majority of waste streams generated during construction will be collected and segregated, prior to controlled handover to licensed and municipal-approved waste management service provider(s). The EPC Contractor will prepare a Project-specific Waste Management Plan that follows good industry practice measures.

It is estimated that approximately 15.9 tonnes of solid wastes will be generated daily during the operation of the airport.

The two main types of solid waste types that are generated at the airport are the following which has been considered in the planned waste management system of the airport:

- Municipal solid waste (MSW)
    - Everyday items that are used and discarded such as cans, bottles, plastic paper, and cardboard, and which are typically generated at most airport facilities.
    - Deplaned Waste – waste removed from aircraft. Deplaned waste from international flights is handled separately from that coming from domestic flights.
    - Compostable and biodegradable waste – food waste and waste from landscaping activities such as grass clippings, shrubs trees, etc.
- Hazardous waste (HW)
    - Waste products such as oils, solvents, and other chemical waste from activities such as aircraft and ground vehicles washing and cleaning, fuelling operations, aircraft maintenance and repair including paintwork and metal work, etc. These types of waste are typically regulated by law and require special treatment when being stored, transported, and disposed of.
- Other less prominent waste types found at an airport include lavatory waste and construction and demolition waste.
    - Lavatory waste is considered a special type of waste that is derived from the lavatory tanks of arriving aircraft, and which contains chemicals and pathogens that can present a risk to the environment and human health.
    - Construction and demolition waste – this includes materials such as concrete, wood, metal, bricks etc. The handling of this waste type is typically dealt with on a case-by-case basis and therefore not included in this report.

All MSW generated at the airport will be segregated at source and maintained during collection and/or interim storage within the airport precinct to facilitate effective diversion, treatment and/or final disposal offsite. To facilitate the segregation of waste at source, recycling bins will be placed in most airport facilities, to collect recyclable materials such as food waste, plastic, metal, and paper.

The solid waste generated in the eastern support zone will be taken directly to the Central Waste-handling Facility (CWHF), located in the east part of the airport, for further segregation. This facility will be able to store and handle all MSW generated at the airport as well as all the

HW generated in the east. The tenants in this location will be responsible for the transportation of their waste (MSW and HW) to the CWHF. The HW at the CWHF will be collected by authorized agencies/third parties and transported directly off-site for immediate processing. This is done to keep handling and storage of the HW to a minimum to minimize the risk of spills and contamination. The treatment of the HW will be done based on the regulatory and statutory disposal methods of Uzbekistan. The disposal of which is typically carried out by the same authorized agencies/third parties which are also reasonable for its collection and transportation.

The solid waste generated on the landside in the west will be stored at one of two interim waste storage facilities (IWSFs). One will be integrated within the Terminal Building and the other will be located in the main utility area. The ISWF integrated within the terminal will exclusively serve the terminal building due to the significant volume generated there. The IWSF located in the utility area will service all other tenants located in the west. Both these IWSF's will be able to store and handle both MSW and HW generated in this area. The tenants in this location will be responsible for the transportation of their waste (MSW and HW) to the IWSF in the utility area. The airport operator will be responsible for the periodic collection and transportation of the MSW from both IWSFs in the west to the CWHF located in the east for further segregation. The collection and transportation of the MSW to the CWHF will only happen at off-peak times to minimize odour and traffic on the roads. The HW generated in the west will be handled the same as the HW generated in the east except the authorized agencies/third parties will collect the HW directly from the two IWSFs.

Solid waste generated by domestic airlines/flights and line maintenance operators must segregate cabin/deplaned waste into recyclables and general waste. This waste will be picked up and transported by the Airport Authority Waste Truck Fleet to the CWHF for temporary storage and further segregation.

From the CWHF, the following is suggested:

- Organic waste (food waste) is sent by the Municipal Waste Truck Fleet to an authorized composting site/plant and used as feedstock in the composting process.
- All plastic, paper, metal wastes, and other recyclable materials be either sent to countries' Cogeneration Plants or, they can be sent to nearby recycling facilities.
- The remaining non-recyclable materials will be disposed of at Municipal (Sanitary) Landfills. This should be considered as the last resort.

International waste (Primarily MSW) from international airlines/flights will be handled, transported, and processed offsite by a contracted certificated operator. The operational schematic presenting the fundamental principles for proposed solid waste management at the Project is illustrated in Figure 2-38.

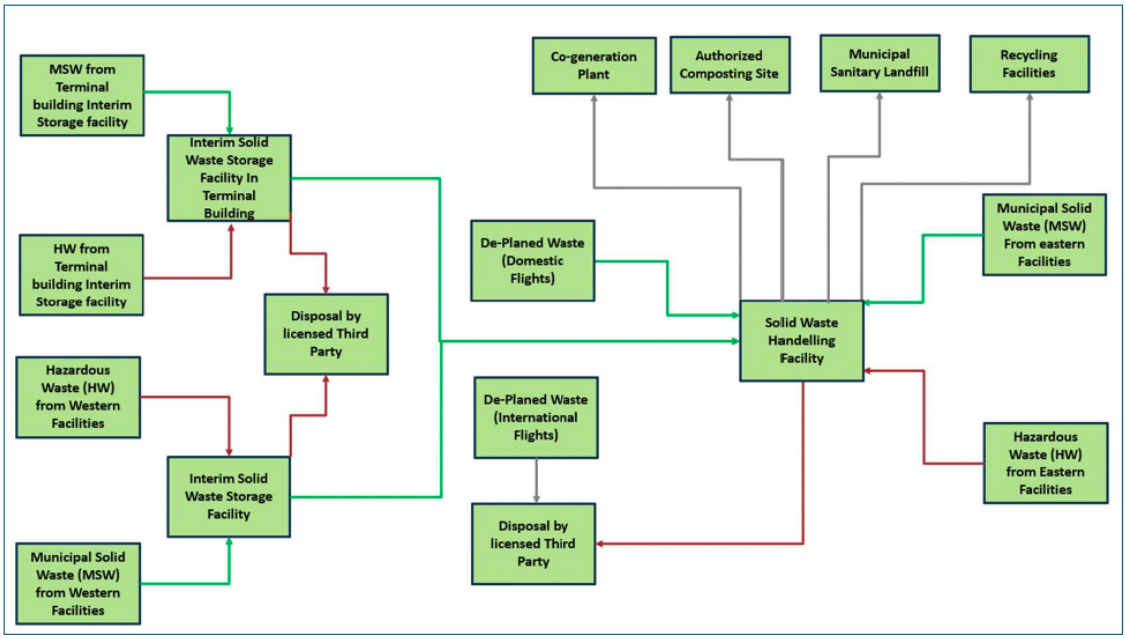



**Figure 2-38 Operational Wastes Management Schematic Illustration**

### Aviation Fuel

The proposed Tashkent International Airport will be provided with a Fuel Farm (FF) located northwest of the main terminal building and runways. The opening phase of the airport will comprise 5x5,000 $m^3$ and 4x400 $m^3$ vertical tanks plus 4x80 $m^3$ horizontal tanks as illustrated in Figure 2-41..

The fuel farm will be used to store different types of fuel, namely TS-1, Jet-A1 SSF, Jet-A1, Jet A-10 and RT. All fuel is supplied to the aircraft via fuel bowsers.

The primary mode of supply of fuel to the airport will be via rail and the secondary mode of supply will be via road tanker. Fuel will be supplied to a rail receipt facility, located approximately 140m to the east, off the airport premises, from where it will be pumped via an underground pipeline to the fuel farm. The fuel farm will be designed to have sufficient storage to mitigate supply disruptions. The most widely used fuel (Jet A-10 will be supplied to the stands via an underground fuel hydrant system. The new airport will make provisions to stock and handle Sustainable/Synthetic Aviation Fuel (SAF) in the future.

The proposed fuel farm will be designed to accommodate storage and distribution of multiple aviation fuel types, including conventional Jet A-1 and SAF blends, in line with evolving international decarbonization commitments and airline sustainability strategies.

The system will include:

- Dedicated storage tanks for different fuel types
- Segregated piping infrastructure to prevent cross-contamination
- Independent pumping systems or controlled manifold systems allowing simultaneous fuelling operations
- Quality control and fuel certification systems compliant with international aviation fuel standards
- Provision for future expansion to accommodate higher SAF blend ratios or 100% SAF, subject to regulatory approval

The fuel farm design incorporates adaptability for increasing SAF uptake in accordance with international aviation decarbonisation pathways, including alignment with:

- The ICAO Long-Term Aspirational Goal (LTAG)
- Airline net-zero commitments
- Emerging EU and regional SAF blending mandates (where applicable)

The infrastructure is designed to avoid technological lock-in and enable phased transition toward lower-carbon aviation fuels.

A schematic of the planned fuel supply system is shown in Figure 2-39.

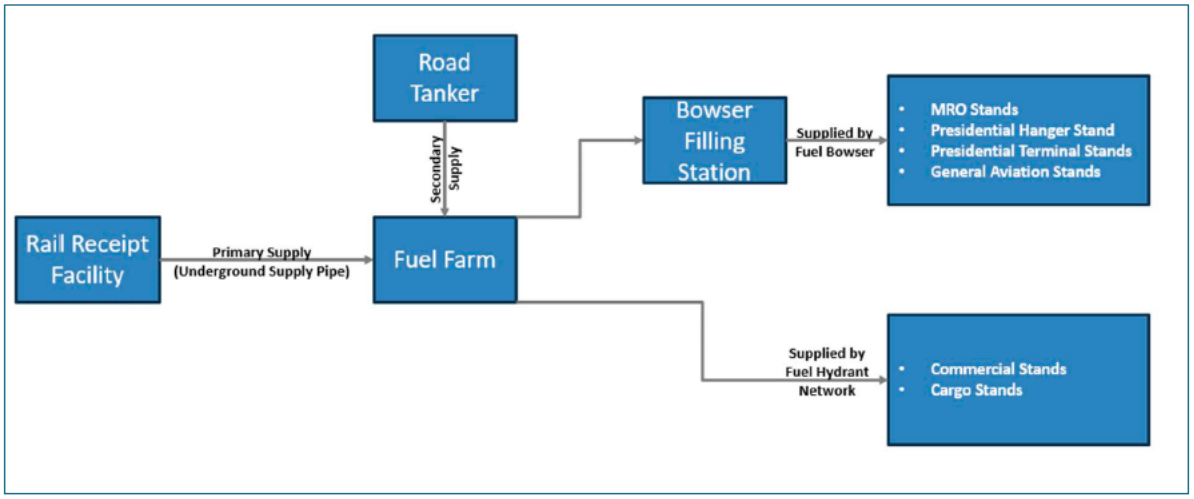



**Figure 2-39 Schematic of the Planned Fuel Supply System**

### De-Icing and Anti-Icing

The process of de-icing and anti-icing is an essential aspect of aviation safety, especially in colder climates. The climatic conditions during winter season result in the accumulation of ice, frost, and snow on the parked aircraft. These will affect the aerodynamic properties of the aircraft if not removed which then poses a safety hazard, making de-icing and/or anti-icing of the aircraft essential before take-off.

De-icing is the process of removing snow, ice, or frost from an aircraft's fuselage and wings. The most common method involves spraying heated glycol-based fluids onto the aircraft melting and removing any Ice, frost, or snow. To prolong the hold-over time, anti-icing may be required. Anti-icing is conducted immediately after de-icing and also involves the application of glycol-based fluids. This procedure involves applying an unheated fluid that is typically thicker than the de-icing fluid. The purpose of anti-icing is to prevent the formation of ice on the aircraft's surface for a certain period, particularly during critical phases such as take-off and initial ascent.

It is envisaged that there will be dedicated de-icing service areas on both ends of each runway. There will be one de-icing service area for each runway. One will be located on the eastern side of the northern runway and another on the western side of the southern runway.

The de-icing service zones located adjacent to each of the de-icing service areas will be equipped with above-ground storage tanks, filling points for de-icing vehicles, underground tanks for spent de-icing fluids. The de-icing vehicles will fill up with the de-icing or anti-icing fluids from the above-ground storage tanks and apply them to the aircraft parked in the de-icing aprons. The drainage networks at each of the de-icing service locations will be designed

to collect the mixture of snow, ice, and spent fluids from the pads. These fluids will not be discharged into the surrounding water courses considering their high levels of Biochemical Oxygen Demand (BOD). Instead, the drainage network will convey the collected runoff from the pads to an underground storage tank (Diversion chamber) adjacent to the de-icing aprons where the concentration of glycol in the collected fluid will be measured.

As an additional safety measure, Glycol Recovery Vehicles (GRV) will be deployed to remove any fluid left on the de-icing apron to minimize the chances of contaminating the surrounding environment. The collected fluid from the GRV will be discharged into the underground storage tanks adjacent to the de-icing pads and subsequently sent for treatment either at the onsite WWTP or to an external treatment facility via a licensed service provider.

## 2.17 Associated Facilities

In accordance with IFC PS1, *'Associated facilities (AF), which are facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.'*

Those associated facilities for the Project are listed below based on information provided by the Client.

- Access Roads
  - A new connecting access road (Main access Road) to the west of the Project site, connecting to the planned future toll road or to the existing A373 Highway
  - A new Service Road, connecting to the Eastern part of the Project Site, connecting to the planned future toll road to the north.
- Overhead transmission lines
- Fuel supply line between the Rail Receipt Pump Bay to the eastern Project boundary, about 140m long.
- Diverted irrigation canals and collectors.

At this stage, key design parameters for the Associated Facilities (including final alignments, technical specifications, and implementation arrangements) are not yet defined, and therefore a detailed environmental and social impact assessment is not currently feasible.

The ESIA has accordingly adopted a proportionate, high-level screening approach to identify potential risks based on available information which are discussed in following sections. Based on the nature and indicative siting of the Associated Facilities, it is not anticipated that physical displacement will be required. This will be confirmed once detailed design information becomes available.

As further details are developed, the Project will undertake a targeted environmental and social screening and, where necessary, a more detailed assessment of the Associated Facilities. This will be documented through an ESIA addendum or equivalent update, including any required management measures, in line with applicable national requirements and international standards.

The scope and timing of this additional assessment will be agreed with relevant stakeholders to ensure that any potential impacts are appropriately identified and managed prior to implementation.

### 2.17.1 Screening of Potential Railway and Metro

The Government of Uzbekistan has identified potential future high-speed rail and metro corridors within the wider Tashkent region, including alignments that may pass in the vicinity of the Project. However, these transport initiatives remain part of broader regional transport

planning and are independent of the proposed airport development. At the time of preparation of this ESIA, the proposed railway and metro schemes remain at a conceptual stage, with no confirmed alignment, design, implementation programme, funding commitment or construction schedule.

In accordance with the definitions of Associated Facilities under IFC Performance Standard 1 and EBRD Environmental and Social Requirement 1, the proposed railway and metro connections are not considered Associated Facilities for the Project. This conclusion is based on the following:

- The airport has been designed to operate independently of any future rail or metro connection, with road access providing the primary means of passenger, employee and freight access from the commencement of operations.
- The technical or commercial viability of the airport does not depend on the future construction or operation of the proposed rail or metro infrastructure;
- The proposed rail and metro corridors form part of wider national and regional transport strategies intended to serve multiple users, destinations and development areas, rather than being developed solely or primarily to support the airport.
- The proposed rail and metro schemes are subject to separate planning, environmental assessment, permitting and financing processes and may be implemented independently of the airport project or not proceed at all.

Accordingly, the proposed railway and metro connections are considered cumulative developments rather than Associated Facilities. Should any future rail or metro infrastructure become sufficiently defined during the Project lifecycle and its relationship with the airport change such that it meets the criteria for an Associated Facility under IFC PS1 or EBRD ESR1, its status will be re-evaluated as part of the Project's ongoing environmental and social management process.

### 2.17.2 Access Roads

As outlined earlier in this report, the airport will be served by two access roads located on the western and eastern sides of the project site. Both access roads will connect either to the planned toll road to the north or the existing A373 highway, eventually providing access to wider Tashkent regional area. These roads are integral to the operation of the airport and are therefore considered Associated Facilities. Based on the current project layout, the access roads are expected to be approximately 2 km and 3.5 km in length (see Figure 2-20). The proposed alignments will predominantly pass through agricultural land; however, a section of the service road is anticipated to overlap with a small residential community located near the planned toll road. While the airport will benefit from and rely on the proposed toll road mentioned above, this new highway from the city to Samarkand is not dedicated to the New Tashkent Airport and will serve wider transport needs and therefore not considered as an Associated Facility.

The development of the access roads is expected to be undertaken as a separate public private partnership (PPP) project and will be required to comply with all applicable national regulations and international environmental and social (E&S) standards.

#### 2.17.2.1 Potential E&S Risks

From an environmental perspective, construction of the access roads will involve land clearance, soil stripping, earthworks, and paving activities. Given that the alignments predominantly traverse agricultural land, impacts are expected to include permanent conversion of farmland, soil compaction, and potential disruption to irrigation patterns. Construction activities may generate dust, noise, vibration and traffic emissions, which could temporarily affect nearby communities. In the operational phase, the roads will introduce

permanent traffic flows, with associated emissions and road traffic noise. Surface water runoff from paved areas may also carry hydrocarbons and sediments into adjacent agricultural land or drainage systems if not properly managed.

Social risks are particularly relevant where a section of the service road overlaps with a small residential community near the planned toll road (once the route is confirmed). Depending on final alignment and right-of-way width, physical displacement or economic displacement (e.g., loss of structures, land, or access) may occur. Even where displacement is limited, livelihood impacts may arise due to permanent land acquisition or temporary construction-related disruption. In addition, increased traffic volumes may create community health and safety risks, including higher accident risk, severance effects, and reduced pedestrian safety.

Under national legislation, land acquisition and compensation processes are governed by statutory procedures. However, international lender standards typically require compensation at full replacement cost, transitional assistance, livelihood restoration, meaningful consultation, and special consideration for vulnerable groups. Potential gaps between local regulatory practice and lender expectations may therefore arise in areas such as valuation methodology, treatment of informal land users, livelihood restoration measures beyond cash compensation, and post-resettlement monitoring. Should land acquisition or displacement occur, the PPP road developer may be required to prepare and implement a Resettlement Action Plan consistent with lender standards.

In addition, lenders may require that road safety audits, traffic impact assessments, and community health and safety management measures are aligned with international good practice, particularly given the scale of induced traffic associated with a major airport.

### 2.17.3 Overhead Transmission Lines

The national power utility provider (NEGU) will supply electricity to the Project via a 110 kV connection to a dedicated power intake facility which will be located near the western boundary of the Project site as indicated in Figure 2-40. At the time of preparation of this ESIA, the confirmed routing and technical specifications of the external power supply infrastructure, anticipated to be delivered via an overhead transmission line (OHTL) have not yet been finalised. Upon receipt of final alignment from NEGU, the potential E&S impacts will be assessed and documented in an addendum to the ESIA.

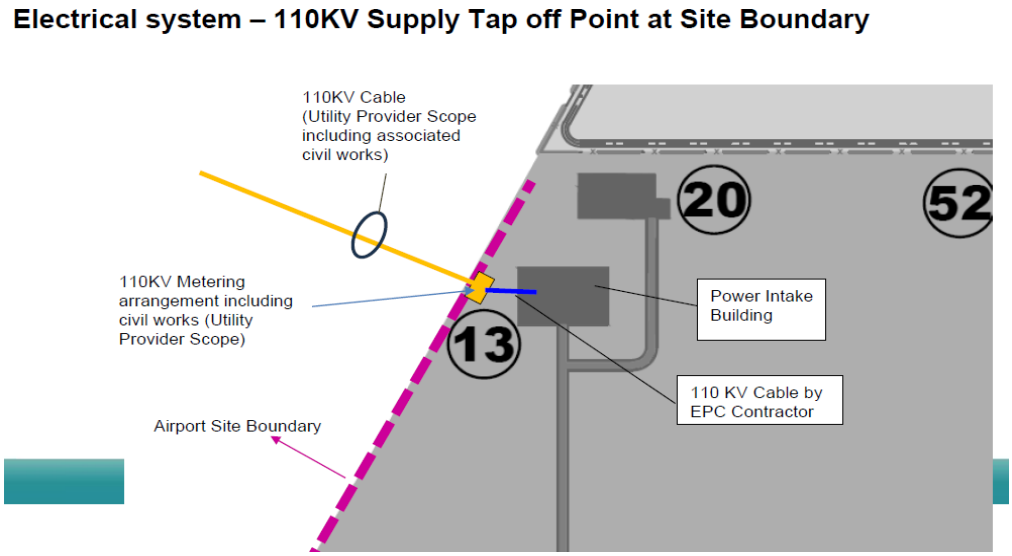



**Figure 2-40 Schematic of External Power Supply and Intake System**

#### 2.17.3.1 Potential E&S Risks

Construction of an OHTL typically requires tower foundations, access tracks, and establishment of a right-of-way corridor. Environmental risks include vegetation clearance, potential habitat fragmentation, and soil disturbance. In open agricultural landscapes, transmission lines may present collision risks for birds, particularly if located along migratory routes or near water bodies. Visual impacts may also be significant given the height and linear extent of transmission infrastructure.

Social impacts may include permanent land acquisition for tower bases and long-term land use restrictions within the right-of-way. Although agricultural activities can often continue beneath transmission lines, restrictions on certain structures or tree planting may affect productivity. Community concerns may also arise regarding perceived health risks from electromagnetic fields (EMF), even where exposure remains within international guidelines.

International lender standards typically require routing alternatives to be assessed to minimise environmental and social impacts, biodiversity risks (including avifauna collision) to be evaluated and mitigated, and land acquisition to comply with replacement cost and livelihood restoration principles. In many jurisdictions, national permitting processes may not require detailed biodiversity assessments, avifauna mitigation measures (such as bird diverters), or comprehensive livelihood restoration. These may therefore represent potential gaps relative to lender expectations.

Given that routing has not yet been finalised, lenders may require further environmental and social due diligence once the alignment is defined, to confirm compliance with applicable standards and to identify any additional mitigation measures required.

### 2.17.4 Fuel Supply Line

As outlined earlier in this report, aviation fuel will be delivered from a rail receipt facility located approximately 140 m east of the airport boundary, outside the project site. From this facility, fuel will be conveyed to the airport fuel farm via a short underground pipeline. The proposed pipeline alignment will pass through agricultural land and may result in temporary or localised disruption to farming activities during construction. However, given the proximity of this land to the airport and its anticipated future land-use constraints, any loss of agricultural productivity is expected to be limited and likely to occur irrespective of the pipeline installation.

#### 2.17.4.1 Potential E&S Risks

Provided reinstatement is properly undertaken, long-term agricultural productivity impacts are expected to be limited. However, operational risks are more significant from an environmental perspective. Fuel pipelines carry inherent risks of leakage, which could result in soil and groundwater contamination if not promptly detected and contained. There are also associated fire and explosion risks.

International lender standards require application of international good industry practice (GIIP) in pipeline design and operation, including corrosion protection, leak detection systems, emergency shutdown systems, spill prevention and response planning, and routine inspection and maintenance. While national standards may address many of these aspects, potential gaps may arise in areas such as continuous leak detection, emergency preparedness planning consistent with international standards, long-term environmental liability provisions, and public disclosure of emergency response arrangements.

The indicative alignment of the underground fuel supply pipeline connecting the airport to the Rail Receipt Pump Bay is presented in Figure 2-41.

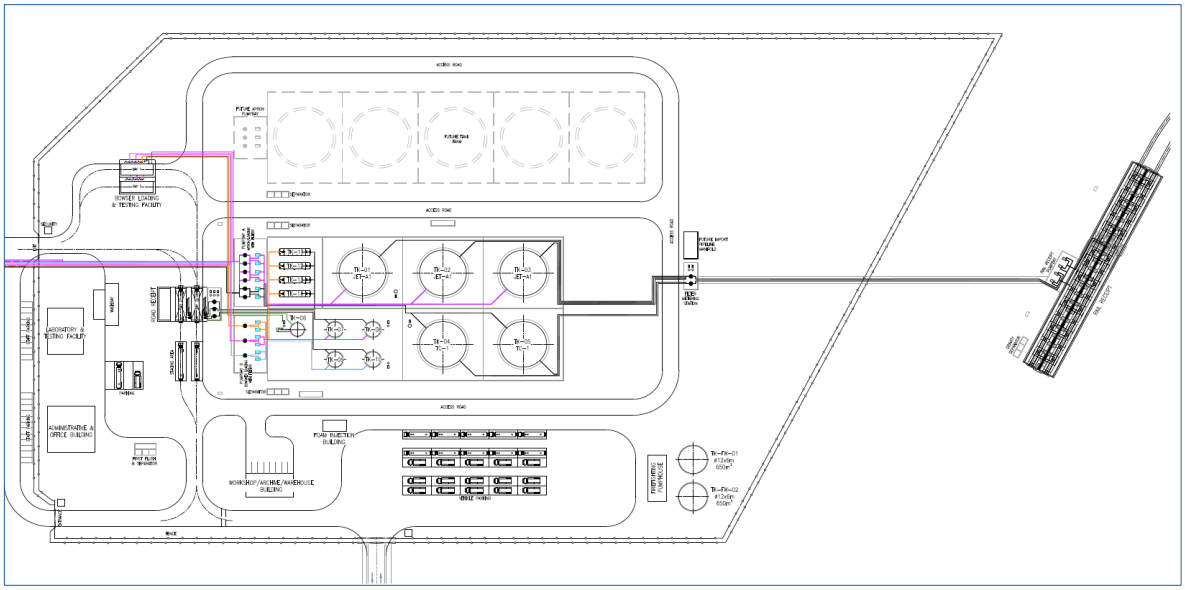


**Figure 2-41 Fuel Supply from Rail Receipt Pump Bay to Airport**

### 2.17.5 Diverted Irrigation Canals and Collectors

As part of the Project, limited diversions of existing irrigation canals and wastewater collectors serving surrounding agricultural areas will be required. The proposed realignments will pass through nearby farmland and may result in minor permanent land take as well as temporary disruption to agricultural activities during construction. However, no significant permanent loss of productive agricultural land is anticipated at a wider scale, as the diversions are intended to reinstate and maintain the integrity of the existing irrigation and drainage network. Preliminary plan for the diversion of canals and collectors and reconstruction of certain sections is illustrated in Figure 2-42 which are subject to further studies and assessment by relevant stakeholders prior to finalisation.

The diversion works will be engineered to maintain or improve existing hydraulic capacity and operational performance, ensuring continued irrigation supply and wastewater conveyance for both adjacent and downstream users. Construction will, where practicable, be scheduled outside peak irrigation periods and coordinated with local water management authorities and water user associations to minimise service interruption and agricultural disruption.

#### 2.17.5.1 Potential E&S Risks

Notwithstanding the design intent described above, the diversion of irrigation canals and collectors presents a number of environmental and social risks that require assessment and management. Environmental risks include temporary interruption of water flows during tie-in works, sedimentation and turbidity arising from earthworks, and potential short-term deterioration of water quality. If not properly managed, construction activities could also result in localised erosion or unintended changes to hydraulic performance. Any reduction in canal capacity or reliability, even on a temporary basis, could have downstream implications for agricultural productivity.

Social risks are closely linked to the reliance of local communities on irrigation water for crop production. Disruption during critical growing periods could affect yields and household income. There is also potential for stakeholder concern if water distribution is perceived to be inequitable or if reinstated infrastructure does not perform to pre-project standards.

In line with international lender requirements, the reconfigured network must demonstrate no net reduction in hydraulic capacity or service levels compared to baseline conditions. Lender

standards also require meaningful consultation with affected water users, documentation of any temporary livelihood impacts, and, where necessary, proportionate mitigation or compensation measures. Post-construction monitoring may be required to verify hydraulic performance and confirm that downstream users are not adversely affected.

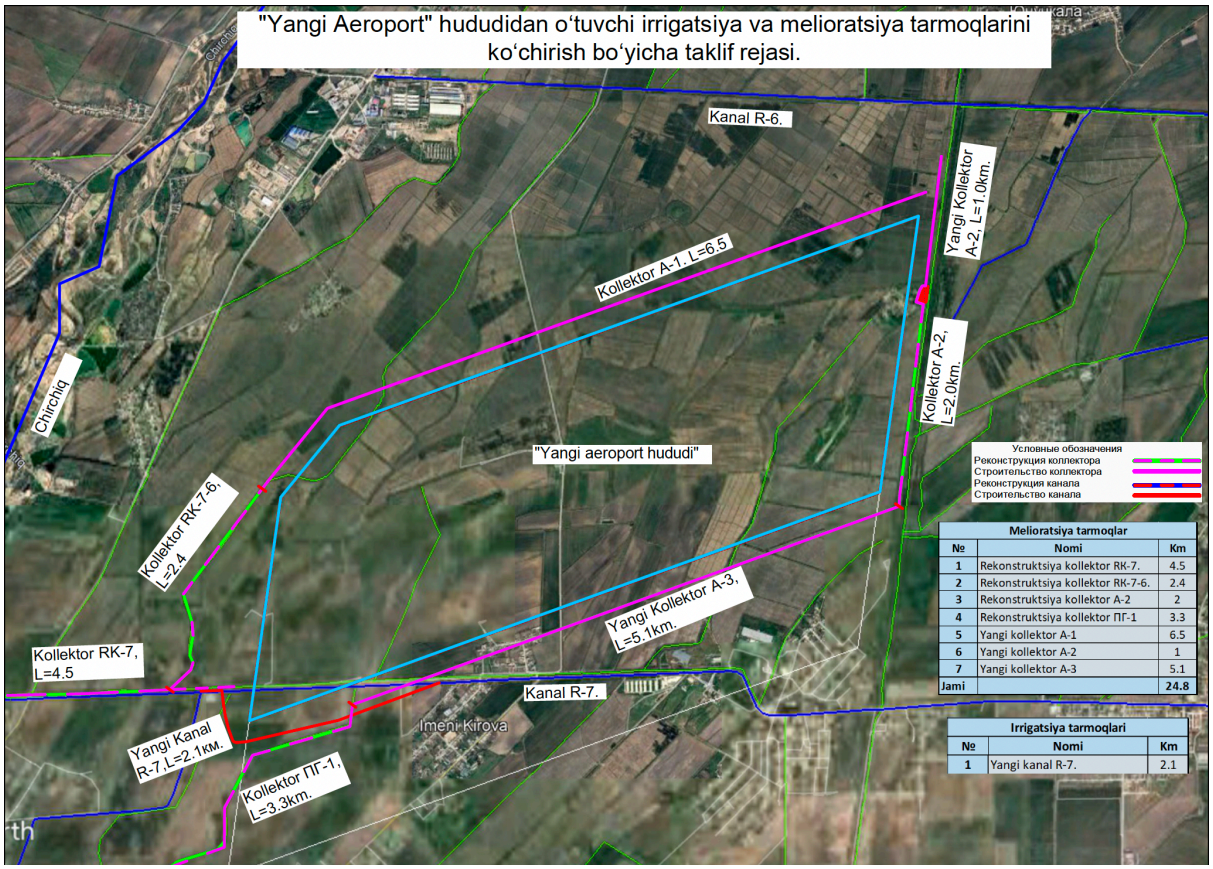



**Figure 2-42 Canal and Collector Diversion Plan (to be confirmed)**

## 2.18 Project Phasing, Timeline, and Key Milestone

Based on the details provided by the Project sponsors, the following tentative timeline of key milestones (see Table 2-3) is currently in place for the Project.

**Table 2-3 Key Project Milestones and Timeline**

| Milestones | Date/Schedule/Duration |
|---|---|
| PPP Agreement Signing | 29 July 2026 |
| Notice to Proceed (NTP) and Financial Close (FC) | Q1 2027 |
| Construction Duration | 48 Months |
| Start of Commercial Operation | Q4 2030 |
| Operational Term | 31 Years |

## 2.19 Project Study Area and Area of Influence

The primary study area for the purposes of environmental baseline data collection and impact assessment is defined as the geographical boundary of the Project site and its immediate vicinity, depending on the environmental and socio-economic parameters being assessed.

The Area of Influence (AoI) for the Project has been defined in accordance with the principles of IFC Performance Standard 1 (PS1) and EBRD Environmental and Social Requirement 1 (ESR1). The AoI represents the geographic area within which the Project may cause direct, indirect, induced, or cumulative environmental and social impacts. In line with international practice, the AoI is not defined by a single fixed boundary but is determined based on the nature of impact pathways, receptor sensitivity, and the spatial extent over which impacts may occur.

The AoI has therefore been determined through consideration of the principal impact pathways, including land acquisition, noise, air quality, greenhouse gas emissions, traffic and transport, biodiversity, water resources, socio-economic effects and visual impacts, supported by baseline surveys, technical modelling, engineering design information and stakeholder consultation. As different environmental and social aspects have different zones of influence, the ESIA adopts a tiered approach whereby the study area varies according to the topic being assessed.

In addition to spatial boundaries, the AoI also considers temporal boundaries, reflecting the period over which Project-related impacts may occur and interact with other activities. Based on currently available information, there are no confirmed or planned developments expected to coincide temporally with the Project in a manner that would materially influence the AoI, particularly in relation to cumulative impacts.

It is acknowledged that, over the longer term, additional development activities are likely to occur during the operational phase of the airport, including broader urban growth and supporting infrastructure. However, at this stage, such developments are not sufficiently defined in terms of scope, location, or timing to allow for a reasonable or robust assessment. As such, they have not been explicitly incorporated into the current AoI definition but will be considered, where relevant, through future planning processes undertaken by relevant stakeholders as further information becomes available.

Accordingly, the temporal scope of the AoI is defined by the Project's construction and operational phases and will be reviewed and updated as additional information on surrounding developments emerges.

Further information related to the AoI for specific environmental and social parameters is discussed in the relevant chapters of the ESIA report.

### 2.19.1 Direct Impacts

The primary AoI includes the Project footprint and areas immediately influenced by construction and operational activities. For the purposes of defining direct environmental impacts, this includes an indicative area of up to 10 km from the runway edges, based on modelling for noise and air quality, as well as:

- Construction work areas and temporary facilities;
- Effluent discharges, including site drainage into the nearby Chirchiq River.
- Access routes used by construction vehicles and delivery traffic;
- Locations of construction support infrastructure;
- Waste management infrastructure that will receive project wastes;
- Potential worker accommodation areas (to be confirmed at a later stage).

Within this zone, impacts are direct and include impacts such as land take, physical disturbance, construction emissions, or operational effects such as aircraft noise.

The AoI includes areas affected by land acquisition and resettlement, including both directly affected households and communities such as Kalkabod that may receive some of the PAPs. This ensures that both direct and indirect social impacts are fully captured.

### 2.19.2 Secondary Impacts

The secondary AoI extends beyond the Project footprint to include areas where indirect or induced impacts may occur. This includes nearby communities that may experience changes in environmental conditions (e.g. noise, air quality, traffic) as well as socio-economic effects.

In addition to local communities, this AoI includes administrative areas such as Urta-Chirchik and Kuyi-Chirchik districts, where the Project is expected to generate employment opportunities, economic activity, and increased demand for goods and services. These benefits are anticipated to extend more broadly to the Tashkent region, reflecting the scale of the Project and its role in regional development.

### 2.19.3 Extended AoI

Certain impacts extend beyond the secondary AoI and are therefore considered within a broader, topic-specific AoI. This includes:

- Regional socio-economic impacts, such as labour market effects and supply chain linkages;
- Greenhouse gas emissions, which are global in nature;
- Sourcing of construction materials, including aggregates, cement, and steel.

With respect to raw materials, potential quarry sources for land raising are considered as part of the Project's supply chain. These are described in a separate section of the ESIA. At this stage, the final selection of quarry locations has not been confirmed and therefore impacts associated with these facilities are assessed at a high level, consistent with available information.

### 2.19.4 Associated Facilities

In accordance with IFC PS1, the AoI includes consideration of Associated Facilities that are directly related to the Project and necessary for its operation. These are assessed proportionately based on their level of dependency on the Project and the availability of design information.

Infrastructure that is conceptual, part of broader regional development planning, or not required for Project viability is not considered an Associated Facility but may be addressed under cumulative impact assessment where relevant.

## 2.20 Cumulative Impacts Assessment

In accordance with IFC Performance Standard 1 and EBRD ESR 1, the ESIA has considered the potential for cumulative impacts arising from the interaction of the Project with existing and reasonably foreseeable future developments within the Area of Influence.

At the time of preparation of this ESIA, there are no confirmed third-party developments with defined construction programmes that are expected to coincide with the Project and result in significant cumulative construction impacts. However, the assessment recognises a number of reasonably foreseeable developments within the wider area, including future urban development to the north of the Project, transport infrastructure (such as planned toll roads and potential rail connections).

As planning for the wider new Tashkent area continues to evolve, the Project Company will maintain a watching brief on future developments through implementation of the Environmental and Social Management System (ESMS). Where new developments become sufficiently defined and have the potential to materially influence the Project's cumulative impact assessment, the need for further assessment and any associated mitigation measures will be reviewed.

## 2.21 Construction Activities

Construction of the proposed airport will comprise a range of airside and landside works undertaken in accordance with applicable ICAO standards and recommended practices.

As outlined earlier in this report, the Sponsors have appointed Larsen and Toubro (L&T) as the EPC contractor for the landside development. A separate EPC contractor, which is yet to be decided, will be responsible for the airside construction works. It is anticipated that approximately 5,000 personnel including labours and other technical staff will be involved in the construction of the Project, of which about 55% and 45% will be engaged for the landside and airside works respectively.

The construction activities expected for the project include the following:

- *Site Preparation and Earthworks*: This involves land clearing of vegetation, grading, excavation, filling to raise the land, and compaction to establish the base for all airport infrastructure. It also includes relocation of existing utilities and diversion of existing drainage and irrigation ditches.
- *Runway, Taxiway, and Apron Construction*: These critical airside components are constructed using high-strength pavement materials. Works include sub-base preparation, asphalt or concrete paving, airfield lighting systems, drainage infrastructure, and installation of runway safety areas and navigational aids.
- *Terminal Building Construction*: This includes the development of passenger terminals with structural frames, roofing, curtain walls, interior fit-outs, Heating, Ventilation and Air Conditioning (HVAC), electrical and Information and Communication Technology (ICT) systems, baggage handling systems, and security screening equipment.
- *Airside Support Facilities*: Construction of aircraft maintenance hangars, ground service equipment (GSE) yards, fuel storage and distribution systems, firefighting and rescue stations, and the ATC tower.
- *Landside Infrastructure*: This includes access roads, bridges (if necessary), parking structures, drop-off/pick-up zones, public transport interfaces, and utility networks (water, power, telecommunications, sewage).
- *Stormwater and Wastewater Management Systems*: Construction of drainage channels, retention ponds, oil-water separators, and connection to municipal treatment systems or onsite treatment plants.
- Landscaping and security fencing installation works.

Construction activities are expected to be undertaken predominantly during daytime working hours. Night-time construction activities are not anticipated as part of the routine construction programme. Should night-time working be required, the activities will be minimised to the extent reasonably practicable and managed through the Construction Noise Management Plan. Appropriate mitigation measures, stakeholder notification and any necessary approvals from the relevant authorities will be implemented prior to undertaking such works.

Some of the main construction activities are discussed in flowing sections:

### 2.21.1 Site Preparation and Earthworks

Vegetation Clearance

Vegetation clearance will be required within the project footprint to enable construction of airside and landside infrastructure. The site is predominantly characterized by naturally growing landscape vegetation, including trees of varying species and maturity. Tree removal or relocation will be undertaken based on tree type, condition, and feasibility of transplantation, and will be subject to the necessary approvals from the relevant authorities. Where relocation is feasible, trees will be transplanted in accordance with good international practice to minimise loss of vegetation. Any unavoidable tree removal will be managed in line with applicable regulations and offset or compensatory measures, where required, will be defined as part of the project's environmental management commitments.

Diversion and Irrigation Canals and Wastewater Collector

As outlined earlier in this report, the Project area is intersected by an existing network of irrigation canals and wastewater collectors that support surrounding agricultural activities and local users. To avoid disruption to downstream users, affected canals and collectors will be diverted in a phased manner prior to commencement of excavation and construction works in the relevant areas. Diversion works will be designed to maintain hydraulic capacity and continuity of flow, with temporary or permanent diversion channels constructed as necessary. Once diversion is completed, the original canal or collector alignments within the construction footprint will be backfilled and reinstated in accordance with approved designs.

Canal diversion and backfilling activities will be carefully planned and coordinated to avoid impacts on farmers, land users, and water availability. All works will be implemented in compliance with applicable regulatory requirements in close coordination with the Khokkimiyat and the irrigation department and will incorporate measures to control sedimentation, prevent contamination, and maintain water quality during construction.

Management of Existing Graveyards

As outlined earlier in this report, four existing graves have been identified within the Project area that may be affected by the airport development and are considered a form of cultural heritage under IFC Performance Standard 8 (Cultural Heritage). Any activities involving these graves will be undertaken with full respect for their cultural, religious, and social significance, and will only proceed following meaningful and inclusive stakeholder consultation with affected families, community representatives, religious authorities, and relevant government bodies.

In accordance with IFC PS8, the project will seek to avoid disturbance of cultural heritage where feasible. Where avoidance is not possible and relocation is required, this will be carried out only with the free, prior, and informed participation of affected stakeholders and in compliance with applicable national legislation and religious practices. Graves will be respectfully relocated to an appropriately identified and agreed location, with procedures documented and approved prior to implementation. All actions will be transparently communicated, and records of consultations and agreed outcomes will be maintained as part of the project's cultural heritage management commitments.

Land Raising

Given the presence of a shallow groundwater table at the project site, ground raising of approximately 4 m above existing levels may be required. It is estimated that approximately 10,500,000 $m^3$ and 1,500,000 $m^3$ of fill material could be required for airside and landside respectively. The fill material needed for this purpose is expected to be sourced from existing, operational quarries within the Tashkent region.

The characteristics and the volumes of required fill material provided here are based on preliminary calculations and have not yet been finalised, as these will be confirmed following completion of detailed topographic and hydrological surveys. The source locations shown in

Figure 2-43 and summarised in Table 2-4 are indicative only and represent potential supply sources that have been identified based on their location, available material type and estimated production capacity. The final borrow areas, quarries and material suppliers will be confirmed by the EPC Contractor during detailed design and procurement.

Prior to the appointment of material suppliers, the EPC Contractor will undertake an environmental and social due diligence process to confirm the suitability of the proposed sources. This assessment will include the following verification for each selected quarry:

- That it is appropriately licensed and operating in accordance with applicable national legislation
- It has sufficient permitted reserves and production capacity to meet the Project demand without requiring unauthorised expansion
- It has implemented appropriate environmental, health and safety management measures
- That the area is not located within protected areas, critical habitats or other environmentally sensitive locations where extraction would result in unacceptable impacts
- The area has appropriate traffic access and haulage routes that minimise impacts on local communities and public roads; and
- It demonstrates compliance with applicable labour and working condition requirements, including those consistent with the Project's commitments under IFC Performance Standard 2, and the Project Labour Management Procedures. Where required, supplier audits will be undertaken prior to engagement and periodically during construction.

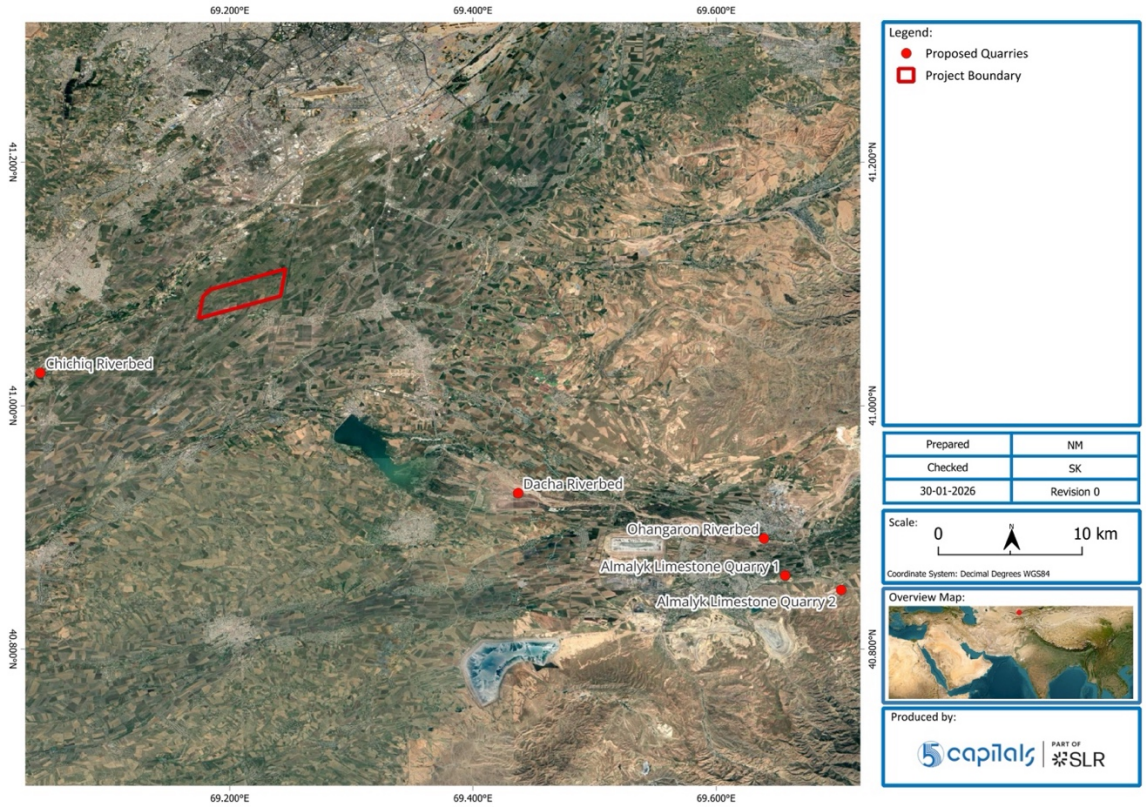



**Figure 2-43 Indicative Locations of Quarries for Sourcing Fill Material**

**Table 2-4 Potential Sources for Fill Material**

| Source Location | District/Region | Type of Material | GPS Coordinates | Required Area (Ha) |
|---|---|---|---|---|
| Chirchiq Riverbed | Yanhiyul | Fill material and crushed aggregate | 41°1'42''N<br>69° 2'15''E | 200 |
| Datcha Riverbed | Pskent | Fill material and crushed aggregate | 40° 55'34''N<br>69° 26'16''E | 300 |
| Ohangaron Riverbed | Pskent | Crushed aggregate | 40° 53'16''N<br>69° 38'4''E | 200 |
| Almalyk Limestone Quarry 1 | Almalyk | Crushed aggregate | 40° 51'29''N<br>69° 39'8''E | 20 |
| Almalyk Limestone Quarry 2 | Almalyk | Crushed aggregate | 40° 50'50''N<br>69° 41'45''E | |

The extraction, transport, and placement of fill material may result in temporary environmental and social impacts, including increased traffic movements, dust and noise generation, greenhouse gas emissions from haulage, and potential localised disturbance at source quarries. Ground raising activities may also affect surface drainage patterns and shallow groundwater conditions if not properly managed. These impacts are expected to be temporary and manageable and will be addressed through the implementation of appropriate mitigation measures, including sourcing materials only from licensed quarries, application of dust suppression measures, traffic management planning, and design controls to ensure groundwater protection.

### 2.21.2 Excavation and Dewatering

Excavation works will be undertaken to prepare the site for landside and airside infrastructure, including runways, taxiways, terminal buildings, and associated facilities. The excavation methodology will be designed to ensure construction efficiency while minimising environmental and other health and safety risks. Excavation activities will be carried out in a phased manner, guided by detailed topographic and geotechnical investigations. The main excavation areas are illustrated in Figure 2-44, with typical excavation depths summarised in Table 2-5 and representative cross-sections of the excavation and foundation design provided in Figure 2-45. A total area of approximately 13,000 $m^2$ of basement excavation will be required.

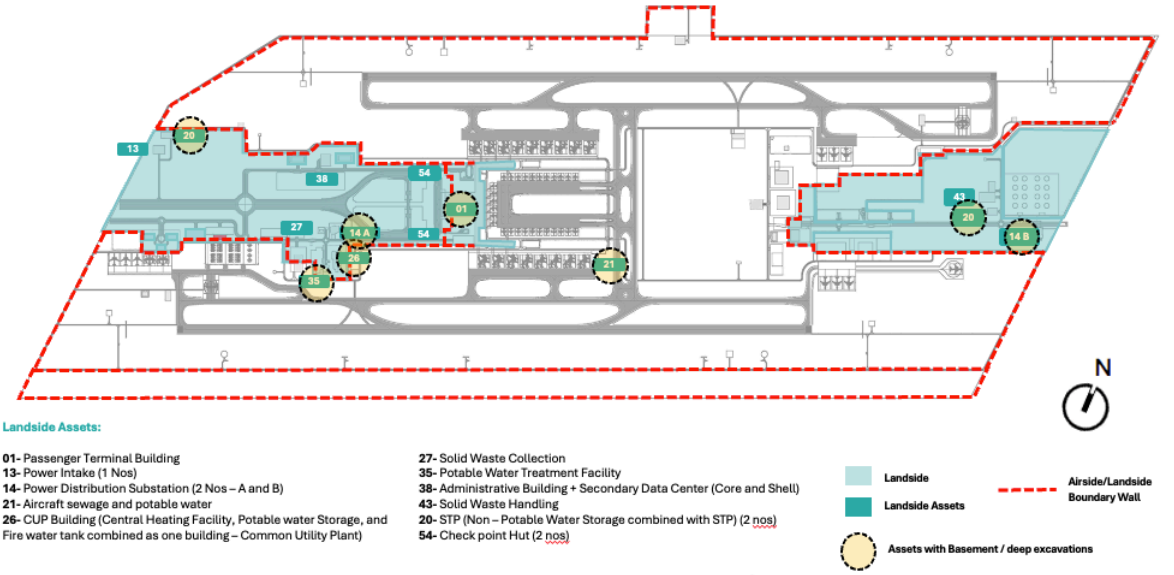



**Figure 2-44 Indicative Locations of Deep Excavations**

**Table 2-5 Estimated Foundation Levels and Excavation Depths**

| Asset Name | Existing Ground Level (m) | Depth of Foundation (m) | Depth of Excavation (m) |
|---|---|---|---|
| Passenger Terminal Building | 358.4 | 354.6 | 3.8 |
| Sewage Treatment Plant | 355 | 347.5 | 7.5 |
| Aircraft Sewage and Potable Water | 358 | 352.9 | 5.1 |
| Common Utility Plant | 356 | 348.8 | 7.2 |
| Potable Water Treatment Facility | 356 | 347.5 | 8.5 |
| Power Distribution – Load Centre A | 363.5 | 359 | 4.5 |
| Power Distribution – Load Centre B | 354.5 | 350 | 4.5 |

Excavation will generally be performed using conventional mechanical methods, including excavators, bulldozers, and loaders, with material temporarily stockpiled on site or transported to designated reuse or disposal areas in accordance with the project's earthworks management plan. Where required, temporary slope stabilisation, shoring, or benching will be implemented to maintain excavation stability and ensure worker safety. Excavation depths will vary depending on local ground conditions and foundation requirements, and groundwater management measures will be applied where necessary to prevent water ingress and sediment release. All excavation works will be conducted in compliance with applicable environmental, health, and safety standards, with mitigation measures implemented to control dust, noise, and runoff during construction.

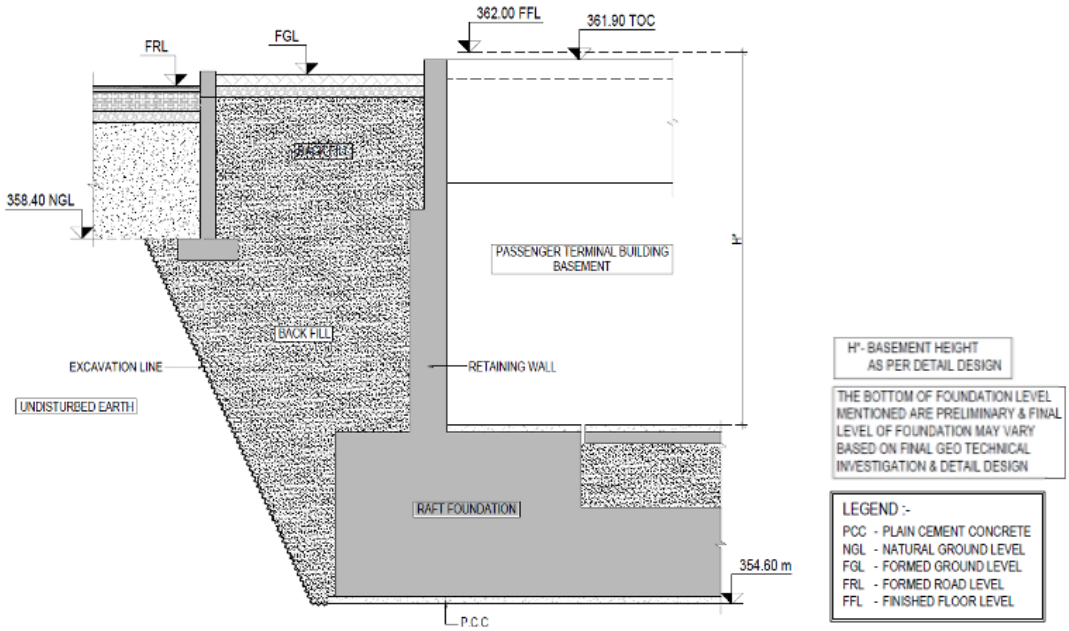



**Figure 2-45 Passenger Terminal Building Excavation Depth Details**

Due to the high permeability of the subsurface materials within the project area, excavation works will require groundwater dewatering, and dewatering volumes could be significant unless appropriate control measures are implemented to limit groundwater inflow. Such measures may include cut-off techniques or localised seepage control, subject to detailed design. While the exact dewatering methodology to be adopted by the EPC Contractor has not yet been confirmed, it is anticipated that well-point dewatering systems will be utilised, based on preliminary geotechnical conditions and to be finalised following detailed geotechnical investigations during the construction planning stage.

At this stage, specific details regarding the estimated duration, rates, and total volumes of dewatering are not available. Any groundwater abstracted during construction is expected to be discharged via the external site drainage system, with ultimate discharge to the Chirchiq River, subject to compliance with applicable regulatory requirements and environmental management measures. Appropriate controls will be implemented to manage water quality, prevent erosion or sediment release, and minimise potential impacts on downstream receptors.

### 2.21.3 Civil and Airfield Works

In addition to site preparation works discussed above, civil works will include, ground improvement where required, and construction of airfield pavements for runways, taxiways, aprons, and aircraft parking stands. Pavement construction will involve subgrade preparation, placement of sub-base and base courses, and installation of asphalt or concrete wearing surfaces designed to meet aircraft load requirements. Additional civil works will include construction of terminal buildings, control towers, cargo and maintenance facilities, perimeter fencing, access roads, car parks, and associated landside infrastructure. Drainage systems, including surface water channels and culverts, will be installed to manage stormwater runoff and protect pavement integrity.

### 2.21.4 Structural and Architectural Works

Structural works will involve reinforced concrete and structural steel construction for terminal buildings and ancillary facilities. Architectural works will include building envelopes, roofing systems, internal partitions, and finishes. Construction materials will be sourced, stored, and

handled within designated laydown areas in accordance with environmental and safety requirements.

### 2.21.5 Mechanical Works

Mechanical works will include installation of heating, ventilation, and air conditioning (HVAC) systems for terminal and support buildings, plumbing and fire protection systems, fuel supply infrastructure where applicable, and mechanical equipment for baggage handling systems. These activities will be coordinated with civil and structural works to ensure integration with building services and operational requirements.

### 2.21.6 Electrical, Lighting, and Navigational Aids

Electrical works will include installation of power supply networks, substations, standby generators, and internal building electrical systems. Airfield ground lighting systems, including runway, taxiway, and apron lighting, will be installed in accordance with ICAO Annex 14 requirements. Navigational aids, communications systems, and air traffic management support infrastructure will be progressively installed and tested as construction advances.

### 2.21.7 Utilities, Systems, and Ancillary Works

Additional activities will include installation of water supply, wastewater and drainage networks, telecommunications, security systems, and airport operational systems. Temporary construction facilities such as site offices, workshops, material storage areas, and worker welfare facilities will be established within designated construction zones and removed following completion of works.

### 2.21.8 Temporary Construction Facilities

Workers Accommodation

As outlined earlier in this report, it is estimated that around 5,000 workers (2,700 for landside, 2,300 for airside) will be required during peak construction majority of which are anticipated be staying at the onsite accommodation facility. Worker's accommodation for the EPC Contractor's construction staff will be provided within the Project site boundary at the western portion as illustrated in Figure 2-46. This will include living quarters as well as other amenities and welfare facilities such as sanitary facilities, canteen halls and other common areas.

At the time of preparing this ESIA, the accommodation and workforce arrangements for the airside contractor have not yet been determined and may include a combination of locally based workers commuting from their homes, use of existing accommodation facilities, and/or temporary worker accommodation.

In addition to the onsite facilities, alternate offsite workers' accommodations may also be required, such as for some of the airside EPC contractor staff and subcontractors that will be involved in Project construction. All onsite and offsite construction worker accommodation provided or paid for by Project parties will be audited for compliance against the latest IFC/EBRD workers accommodation – processes and standards. In addition, the EPC contractor will need to undertake an assessment of housing options and availability to ensure sufficient capacity of appropriate housing in the locality prior to mobilisation.

Temporary construction facilities will also include site offices, construction yards, waste management and chemicals storage areas, workshops, batching plant etc. (see Figure 2-46).

Construction Utilities

The main utilities required during the construction phase will include construction water, potable water, electricity, and fuel supply.

Water for construction purposes is expected to be primarily sourced from groundwater via onsite wells, subject to the necessary permits and hydrogeological assessment. Based on the current construction planning assumptions, the peak construction workforce is estimated to comprise approximately 5,000 personnel. Assuming a domestic water consumption rate of 150 litres per person per day, the domestic water requirement is estimated at approximately 750 kL/day (750 m³/day). Water required for construction activities, including concrete production, dust suppression, equipment washing and other construction-related uses, is estimated at approximately 1,752 kL/day (1,752 m³/day).

Accordingly, the total tentative water requirement during the peak construction period is estimated to be approximately 2,500 kL/day (2,502 m³/day). This estimate will be refined during the detailed construction planning stage as construction methodologies, phasing, water sources and demand management measures are further developed.

Electricity demand for construction activities is anticipated to be met from the national grid, managed by the JSC National Electric Grid of Uzbekistan. It is estimated that approximately an average of 5,500MWh of electricity will be required per year during construction. Diesel generators will be used as backup power sources in the event of grid disruptions to ensure uninterrupted operations.

Fuel supply, primarily high-speed diesel, required for backup generators and other construction plant and equipment will be procured from JSC Uztransgaz or alternative approved suppliers arranged by the EPC contractor.

The estimated types of plant and their anticipated fuel consumption are shown in Table 2-6.

**Table 2-6 Construction Plant and Estimated Fuel Requirement**

| Type of Machinery | No | Fuel Consumption Lts/day |
|---|---|---|
| Dozer | 1 | 128 |
| Excavator | 3 | 80 |
| Wheel Loader | 2 | 80 |
| Grader | 3 | 128 |
| Vibratory Roller | 4 | 72 |
| Water Tanker | 3 | 32 |
| Paver | 1 | 112 |
| PTR | 1 | 72 |
| Tandem | 1 | 56 |
| Skid Steer Loader | 1 | 32 |
| Mini Roller | 1 | 32 |
| Crane 25 Ton | 1 | 64 |
| Transit Mixer | 3 | 67 |
| Truck 25 Ton | 8 | 89 |

Construction Waste Management

Dedicated areas will be earmarked within the Project site for collection, handling and temporary storage of waste materials. Sanitary drains will be installed to collect wastewater from all welfare facilities, including toilets, showers, sinks and other sanitary amenities provided for the construction workforce.

Based on a peak construction workforce of approximately 5,000 personnel and an estimated domestic water demand of 750 kL/day (750 m³/day), the Project is expected to generate approximately 600 kL/day (600 m³/day) of domestic wastewater, assuming that approximately

80% of potable water consumption is returned as sewage. To manage this wastewater, an onsite Sewage Treatment Plant (STP) will be installed as part of the temporary construction facilities. The STP will be designed to treat domestic wastewater to the applicable national standards and international good practice prior to discharge, reuse or disposal, as appropriate. The detailed design capacity, treatment process and management arrangements for the STP will be confirmed during the detailed engineering phase.

The EPC Contractor will enter contractual agreements with licensed waste service providers to transport and dispose or treat different construction waste streams listed in Table 2-7

**Table 2-7 Construction Waste Types**

| Waste Type | Description |
|---|---|
| Hazardous waste | Waste materials contaminated with substances that pose a risk to health or the environment, including used/waste oils, oily rags, oil filters, used oils from diesel generators (DG), compressor oil, transformer oil, workshop waste, discarded containers or barrels contaminated with hazardous substances (e.g., used oil drums, paint drums), and bottom sludge from storage tanks or areas. |
| Construction and Demolition (C&D) waste | Waste generated from construction and demolition activities, including earth excavated material, concrete rubble, bricks, wood, metal scrap, and other inert or non-hazardous debris. These materials may be subject to reuse, recycling, or proper disposal. |
| Non-hazardous waste | General solid waste generated during construction excluding C&D waste, such as paper, cardboard, packaging waste, plastics, and other non-hazardous refuse from site operations. |
| Municipal Solid Wastes | Domestic waste generated within worker accommodations and site offices, including food waste, paper, plastics, and other typical household-type waste. |
| Packaging Waste | Packaging materials received with construction materials, including cardboard boxes, plastic wrapping, wooden crates, and labelling materials. These may be recyclable and should be segregated accordingly. |
| Wastewater | Water contaminated or used during construction activities, including runoff, dewatering discharge, process water from concrete batching, and domestic wastewater from worker facilities. |

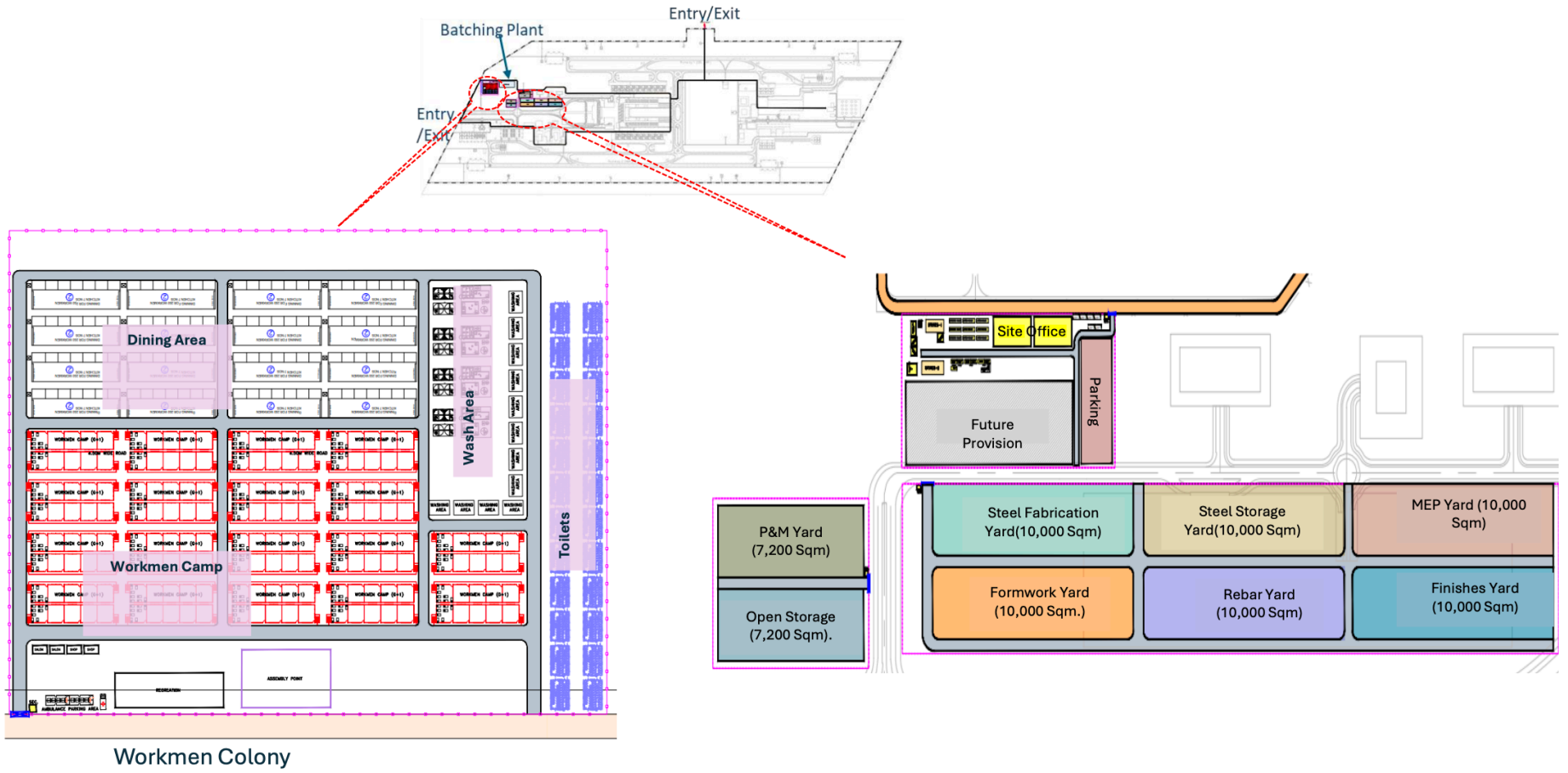



**Figure 2-46 Construction Stage Temporary Facilities Layout**

### 2.21.9 Environmental and Safety Management

All construction activities will be implemented in compliance with applicable environmental, health, and safety standards. Mitigation measures will be applied to control noise, dust, waste generation, traffic movements, and potential impacts on surface water and surrounding receptors. Detailed construction methodologies and mitigation measures will be set out in contractor-specific management plans to be developed prior to commencement of works.

## 2.22 Airport Operation and Maintenance

### 2.22.1 Management Structure and Roles

The new Tashkent International Airport will be developed, operated, and managed by TAA which is the SPV, with TAA responsible for the operation of landside and other airport assets, while the Public Partner will be responsible for the operation of airside and airfield assets. The SPV will oversee all core operations and management functions for activities under its responsibility, while strategically outsourcing specific non-core services and technical operations to specialised entities, namely, a Facility Management (FM) company and an Airport Operating Partner (AOP). The SPV will maintain governance and oversight of all operational, environmental, social, and safety aspects, ensuring that airport activities comply with national regulations and international aviation standards.

The SPV will maintain an adequately staffed organisation, including an Environmental and Social (E&S) Manager responsible for overseeing compliance with environmental and social standards, coordinating impact assessments, implementation of the Grievance Redress Mechanism (GRM), monitoring mitigation measures, and reporting to project leadership and regulatory authorities. The airport will also have a dedicated Health, Safety, and Environment (HSE) department led by a Chief Safety Director and supported by HSE and Quality Managers and officers. This team will be responsible for developing health and safety procedures, conducting risk assessments, ensuring compliance with safety protocols, and managing incident reporting.

### 2.22.2 Workforce

The in-house workforce for airport and FM services for the landside is expected to comprise approximately 3,000 personnel, with an additional estimated 2,000 staff engaged in overall airport operations for the airside, including ground handling and other ancillary services.

Training programs will be implemented to ensure compliance with safety, environmental, and operational standards. Staff induction and ongoing capacity building will form part of standard operational procedures to maintain high-quality services and regulatory compliance.

### 2.22.3 Operational Activities

Once operational, the airport will support continuous activities such as aircraft landings and take-offs, passenger processing, baggage handling, cargo operations, air traffic management, ground transportation, maintenance, fuelling, catering, cleaning, and waste management. Ancillary commercial services, including duty-free shops, restaurants, car rentals, and hotels, will also be integral to airport operations.

### 2.22.4 Maintenance Activities

Routine and periodic maintenance will be conducted for all airport infrastructure, including runways, taxiways, aprons, terminal buildings, and operational equipment. Maintenance activities will include pavement repairs, structural inspections, mechanical and electrical system servicing, and maintenance of vehicles and ground support equipment.

Preventive and corrective maintenance programs will ensure safety, reliability, and uninterrupted airport operations, while minimising downtime and operational disruptions.

### 2.22.5 Utilities and Resource Management

Operational utilities will include water, electricity, fuel, and telecommunications systems to support airport functions. Water for operational use will be sourced from approved municipal or groundwater supplies, while electricity will be drawn from the national grid with backup diesel generators. Fuel will be supplied through authorized vendors and managed under strict storage and handling protocols.

Resource management practices will aim to optimize efficiency, reduce waste, and minimise environmental impacts associated with airport operations.

### 2.22.6 Community and Stakeholder Engagement

The SPV will maintain ongoing engagement with local communities, government authorities, and other stakeholders to address any concerns or grievances and provide information on operational activities. The GRM will be in place to respond promptly to complaints or issues related to airport operations, including noise, traffic, and environmental impacts.

Periodic community consultations and information dissemination will ensure transparency and support the airport's social license to operate.

## 2.23 Decommissioning of Existing Airport

The decommissioning of the existing Islam Karimov Tashkent International Airport is not part of the current ESIA scope and remains subject to separate government planning, timing, and implementation decisions. As such, the detailed approach to decommissioning, including the sequencing of activities, land use transition, and associated environmental and social management measures, has not yet been defined. In line with this, a detailed quantitative assessment is not feasible at this stage.

However, a high-level qualitative assessment has been undertaken to identify potential environmental and social implications associated with the eventual relocation of airport operations.

In considering the wider regional context, it is noted that a 10 km radius from the existing airport encompasses a substantial portion of the urban core of Tashkent, including dense residential areas. Population density within this zone is estimated to be approximately 5,000 to 6,000 people per km², indicating that a significant urban population (more than 1 million people) is currently exposed to aircraft-related noise and associated environmental effects.

The relocation of airport operations will therefore result in notable environmental and social benefits, including:

- Reduction in aircraft noise exposure across large urban areas;
- Improvement in local air quality, due to the avoidance of aircraft emissions, ground support activities and traffic congestions in Tashkent city;
- Potential improvement in overall urban liveability in affected districts.

At the same time, decommissioning may give rise to a range of environmental and social considerations, which would need to be addressed once plans are defined. These could potentially include:

- Management of demolition waste and potential contamination from historical airport activities (e.g. fuels, oils, chemicals);
- Remediation of soils and groundwater, where required;

- Temporary impacts during decommissioning works (e.g. noise, dust, traffic);
- Changes in employment associated with airport operations and transition to alternative land uses;
- Planning and management of future land use, including potential redevelopment of the site;
- Management of any legacy infrastructure and utilities.

Given that the decommissioning programme and subsequent land use are not yet determined, these impacts are expected to be location and design specific and will require further detailed assessment.

Accordingly, it is anticipated that, once the scope and timing of decommissioning are confirmed, a separate environmental and social assessment and management plan will be prepared in accordance with applicable national regulations and international standards. This will ensure that any potential adverse impacts are appropriately mitigated and that opportunities for environmental and social enhancement are maximised.

## 2.24 Assessment of Alternatives

### 2.24.1 No Project Option

As outlined earlier in this report, the Republic of Uzbekistan is undertaking the development of the new airport to replace the existing Tashkent International Airport. This initiative forms part of the country's broader strategic infrastructure programme, supporting its rapid transformation and integration into the global economy. The new airport is envisioned as a key regional hub for connectivity and trade, reinforcing the Republic of Uzbekistan’s position as a leading destination in Central Asia.

The decision to develop this new international airport is underpinned by a combination of economic, strategic, and logistical considerations, including the need to enhance air transport capacity, boost tourism and trade, and address environmental concerns such as the existing noise-related impacts on surrounding communities from the current airport. The new site has been selected to mitigate this legacy issue while accommodating future growth.

Given the strategic importance of the Project, the ‘No Project’ scenario is not considered a viable alternative, as it would fail to meet the core objectives of the Ministry of Transport and the broader development goals of the government of the Republic of Uzbekistan. This option would limit the country's ability to enhance regional connectivity, address existing infrastructure constraints, and support long-term economic growth and competitiveness.

Under the No-Project alternative, the proposed airport development would not proceed, and the existing Islam Karimov Tashkent International Airport would continue to operate within its current urban setting. In this scenario, current environmental and social conditions would largely persist, including ongoing exposure of nearby communities to aircraft noise, air emissions, and operational disturbance.

The existing airport is located within a densely populated urban environment, where a significant proportion of the population resides within proximity to flight paths and operational areas. As such, the continuation of operations at the existing airport would result in the ongoing exposure of large urban populations to elevated noise levels, as well as continued local air quality impacts associated with aircraft movements and ground operations. In contrast, the Project involves relocation of operations to a less densely populated area, thereby redistributing and, in some cases, reducing exposure at a city-wide scale.

From a social perspective, the No-Project scenario would also result in the absence of potential benefits associated with the Project. These include:

- Development of new infrastructure (e.g. access roads, utilities, and services) in the Project area;
- Improved regional connectivity and accessibility;
- Generation of employment opportunities during both construction and operation;
- Stimulation of local economic activity in surrounding districts, including Urta-Chirchik and Kuyi-Chirchik, as well as the wider Tashkent region.

Stakeholder consultations undertaken as part of the ESIA indicate that local communities perceive the Project as an opportunity to enhance infrastructure provision and access to employment, which would not be realised under the No-Project alternative.

At the same time, the No-Project scenario would avoid certain Project-related impacts, including:

- Land acquisition and associated resettlement;
- Construction-related disturbances (e.g. noise, dust, traffic);
- Localised environmental impacts at the new airport site.

However, these avoided impacts are site-specific and temporary (in the case of construction), whereas the continued operation of the existing airport would maintain long-term environmental pressures on a larger urban population.

Overall, the No-Project alternative would maintain the current baseline conditions and avoid new site-specific impacts but would also result in the continued exposure of urban communities to aviation-related impacts and the loss of potential environmental and socio-economic benefits associated with the Project.

### 2.24.2 Siting Alternatives

The requirement for the airport to be located near Tashkent is driven by the Project's purpose, which is to replace the existing Islam Karimov Tashkent International Airport and continue serving the city as the primary aviation hub. As such, the new airport must remain within a reasonable distance of Tashkent to maintain accessibility for passengers and cargo and preserve regional connectivity.

The selection of the site to the south of Tashkent city was driven by a combination of environmental, social, and technical considerations. Sites located to the north and east were discounted due to their proximity to planned urban expansion areas of Tashkent, which would have resulted in greater exposure of future residential populations to aircraft noise. Other factors included the need to avoid airspace and operational constraints such as obstacles and prevailing wind conditions. Overall, the southern location was preferred due to its comparatively lower density of nearby residential receptors and reduced potential for environmental and social impacts.

A comprehensive site selection study was conducted by NACO for the new Tashkent Airport based on a shortlist of potential locations initially identified by the Government to evaluate potential locations that are suitable for the construction and operation of the airport. This involves assessing various factors such as socio-geographical, operational and technical considerations to determine the most suitable site.

As part of the study, the data gathered from three sites specified by the Ministry of Transport were utilised. These sites were visited during two separate visits in December 2023 and January 2024. To ensure comprehensive coverage of the search area, a fourth option within the same vicinity has been included. The locations and layout of the four options that were considered are illustrated in Figure 2-47.

Multilevel evaluation criteria were used to assess and evaluate the most suitable option for the Project site which is included in Table 2-8. Among the several criteria that were used in the assessment, the impacts to the existing gas pipeline were given the highest priority as a standalone weighted criterion and therefore considered as a “No-Go”.

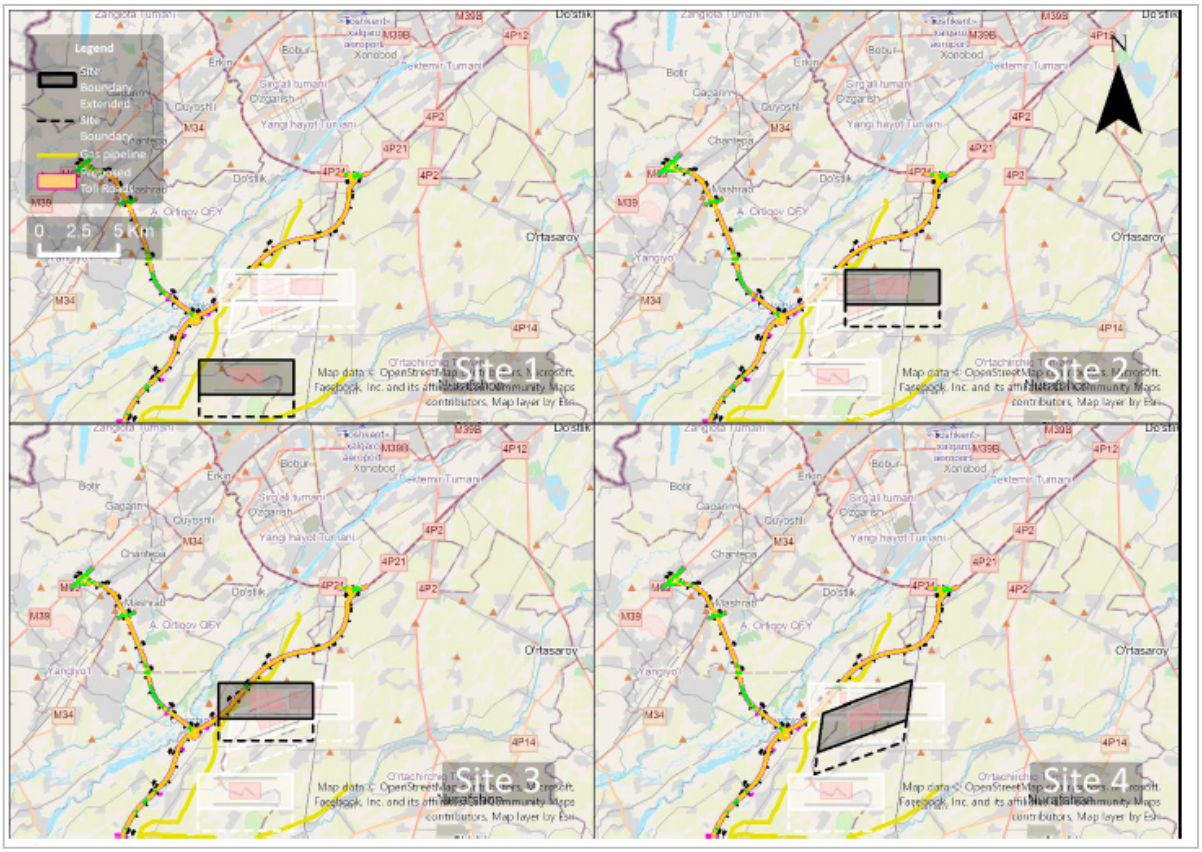



**Figure 2-47 Geographical Locations of Optional Sites**

Based on the evaluation made by NACO, and besides the Go/No-Go criterion for the gas pipeline, the presence of graveyards within the proposed site was considered the most important weighted criterion, followed by rail upgrade requirements and by the residential areas within the 65 and 55 dB(A) noise contours respectively. The key types of criteria used in the site selection assessment are listed below.

- Go/No-Go Criteria
  - Gas pipeline impacting critical airport assets
- Social and Geographical Criteria
  - Existing land use within the Project site boundaries
  - Eastward expansion Tashkent City affected by noise
  - Noise Impact
- Operational Criteria
  - Connectivity of site road/rail
  - Wind direction / runway usability
  - Obstacles
  - Airspace

- Technical Criteria
  - Topography
  - Geology and seismicity
  - Geohydrology

**Table 2-8 Evaluation Criteria Weighing and Ranking**

| Criteria | Weighing Factor | Ranking |
|---|---|---|
| **Go / No-Go Criteria** | | |
| Gas pipeline impacting critical airport assets | Go / No-Go | 1 |
| **Social – Geographical Criteria** | | |
| Existing land-use within the projected site boundaries | | |
| Reduced land due to gas pipeline [ha] (non-critical airport assets) | 4.8% | 12 |
| Residential areas | 6.2% | 9 |
| Industrial areas | 5.2% | 11 |
| Cemeteries / Heritage sites | 9.5% | 2 |
| Roads | 1.0% | 20 |
| Power lines | 1.4% | 19 |
| Rivers | 0.5% | 21 |
| Eastward expansion Tashkent City affected by noise | 4.3% | 13 |
| Noise impact | | |
| Residential areas within 55 dB(A) noise contour | 8.1% | 5 |
| Residential areas within 65 dB(A) noise contour | 8.6% | 4 |
| **Operational Criteria** | | |
| Connectivity of site by road / rail | | |
| Road distance from Tashkent | 2.9% | 16 |
| Rail distance from Tashkent | 1.9% | 18 |
| Rail infrastructure upgrade requirements | 9.0% | 3 |
| Wind direction / Runway usability | 2.4% | 17 |
| Obstacles | 7.6% | 6 |
| Airspace | | |
| Distance to nearest border with Kazakhstan | 6.7% | 8 |
| Distance to nearest boundary of UTTT TMA | 7.1% | 7 |
| **Technical Criteria** | | |
| Topography | 3.3% | 15 |
| Geology and Seismicity | 3.8% | 14 |
| Geohydrology | 5.7% | 10 |

### Methodology for Criteria Weighting

A structured weighting methodology was applied by NACO to determine the relative importance of several criteria including environmental and social criteria such as noise, cultural heritage, resettlement (see table above) used in the site selection assessment. The weighting of criteria was derived through a pairwise comparison approach, whereby each parameter was

assessed relative to others and assigned a binary score. The total score for each parameter was normalised against the overall score to derive percentage weightings, which were then used to rank the relative importance of each factor. For each comparison:

- A value of “1” was assigned where a criterion was considered more important than the comparator; and
- A value of “0” was assigned where it was considered less important.

Self-comparisons were excluded from the analysis. This process resulted in a comparison matrix (see Figure 2-48), where each criterion received a total score based on the number of times it was considered more important relative to others.

The total score for each criterion was then calculated by summing all positive (i.e. “1”) comparisons across the row. The overall score across all criteria was subsequently derived by summing the individual criterion scores.

To determine the relative weighting, each criterion score was normalised against the total score using the following formula:

$$\text{Weight (\%)} = (\text{Total Score} / \text{Criterion Score}) \times 100$$

This process results in a percentage weighting for each criterion, reflecting its relative importance within the overall assessment framework. The criteria were then ranked based on their respective weightings, with higher percentages indicating greater relative importance.

This method provides a transparent and consistent basis for weighting, ensuring that all criteria are evaluated systematically. While the approach is based on expert judgement, it enables a structured comparison and reduces subjectivity through a repeatable scoring process.

| | Gas pipeline impact to critical airport assets | Gas pipeline impact to non-critical airport assets [ha] | Residential area [ha] | Industrial area [ha] | Cemeteries/heritage sites [ha] | Roads [m] | Power lines [m] | Rivers [m] | Noise [ha of residential area affected by 55 dB noise contours] | Noise [ha of residential area affected by 65 dB noise contours] | Obstacles | Distance to nearest border with Kazakhstan [km] | Distance to nearest boundary of UTTT TMA [km] | Wind direction/runway usability | Road - Distance from Tashkent (km) | Rail - Distance from Tashkent (km) | Rail - Required infrastructure upgrades (km) | Eastward expansion Tashkent City area affected by 55 dB(A) noise contours [ha] | Topography | Geology and Seismicity | Geohydrology | Overall Weight | Relative Weight | Ranking |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gas pipeline impact to critical airport assets | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Gas pipeline impact to non-critical airport assets [ha] | | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 10 | 4.8% | 12 |
| Residential area [ha] | | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 13 | 6.2% | 9 |
| Industrial area [ha] | | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 11 | 5.2% | 11 |
| Cemeteries/heritage sites [ha] | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 20 | 9.5% | 2 |
| Roads [m] | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1.0% | 20 |
| Power lines [m] | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1.4% | 19 |
| Rivers [m] | | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.5% | 21 |
| Noise [ha of residential area affected by 55 dB noise contours] | | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 17 | 8.1% | 5 |
| Noise [ha of residential area affected by 65 dB noise contours] | | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 18 | 8.6% | 4 |
| Obstacles | | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 16 | 7.6% | 6 |
| Distance to nearest border with Kazakhstan [km] | | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 14 | 6.7% | 8 |
| Distance to nearest boundary of UTTT TMA [km] | | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 15 | 7.1% | 7 |
| Wind direction/runway usability | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 2.4% | 17 |
| Road - Distance from Tashkent [km] | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 2.9% | 16 |
| Rail - Distance from Tashkent [km] | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1.9% | 18 |
| Rail - Required infrastructure upgrades [km] | | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 19 | 9.0% | 3 |
| Eastward expansion Tashkent City area affected by 55 dB(A) noise contours [ha] | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 9 | 4.3% | 13 |
| Topography | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 7 | 3.3% | 15 |
| Geology and Seismicity | | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 8 | 3.8% | 14 |
| Geohydrology | | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 12 | 5.7% | 10 |
| | | | | | | | | | | | | | | | | | | | | | | 210 | 100% | |

**Figure 2-48 Comparison Matrix to Calculated Criterion Weightage (NACO)**

### Assessment of Potential Noise Impacts

A preliminary noise assessment was also considered during the master planning stage, particularly looking at nearby receptors that will be impacted with noise levels of 65 and 55 dB(A).

The impact of noise depends on the expected fleet mix of the airport. At this stage this information is not available and therefore the detailed calculation of the noise cannot be performed. To get an estimate of the impact of noise, the noise contours of a comparable airport are selected, using current generation aircraft, in order to estimate the residential areas affected by these noise contours. This is only for the purpose of the initial site selection, and these indicative contours are not specifically calculated for the new Tashkent Airport. Traffic volumes and runway usage may be different, as well as the Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs).

A preliminary assessment of noise impacts was carried out by NACO as part of the site selection study using a 2 run-way system with 31 million Annual Passengers (MAP) and 535 daily aircraft movements. The indicative noise contours for each site are plotted in Figure 2-49.

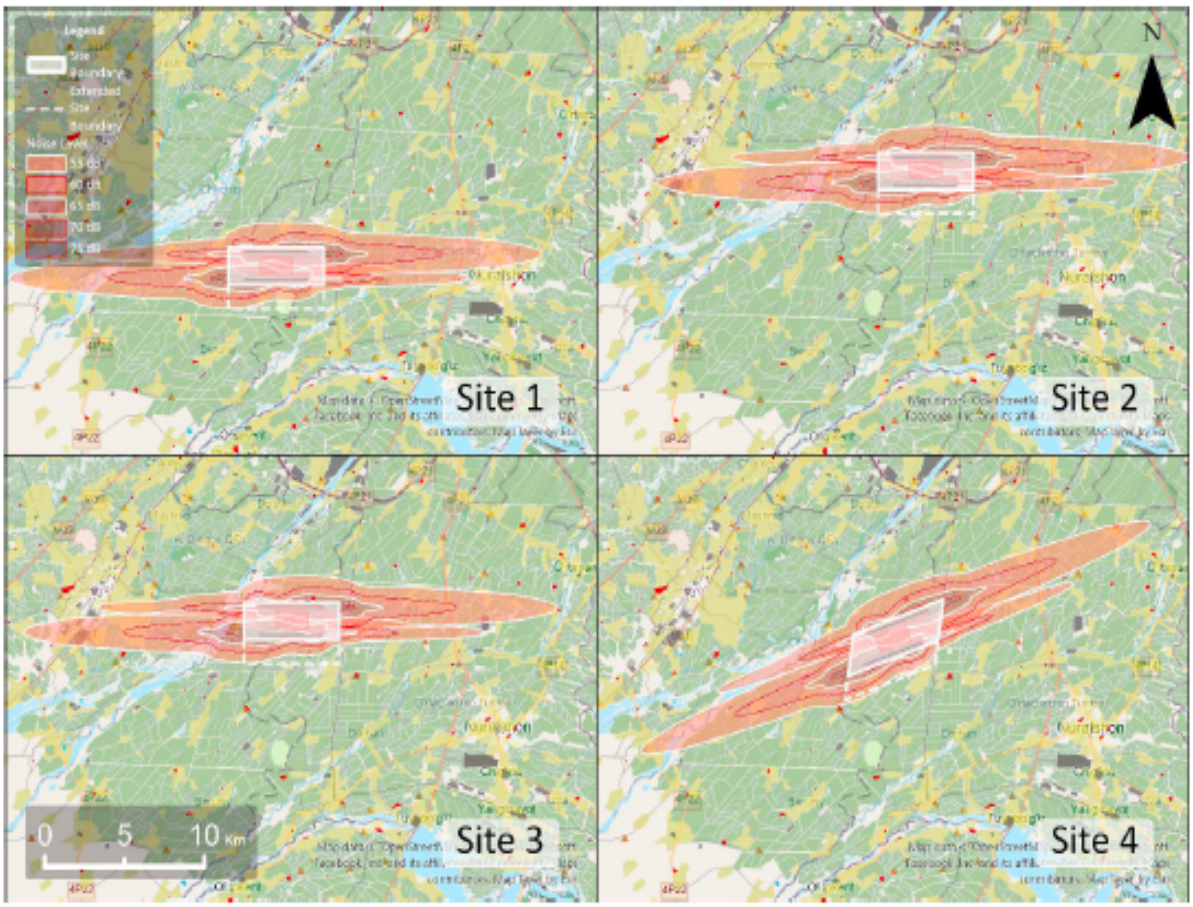



**Figure 2-49 Indicative Noise Contours for Each Site**

As outlined earlier, the site selection process, undertaken at the feasibility stage by NACO applied a structured multi-criteria assessment to evaluate alternative locations. This approach incorporated environmental and social considerations, including noise exposure, residential areas (as a proxy for potential displacement), and sensitive receptors, alongside technical and operational factors.

Consistent with the requirements of IFC PS1 and EBRD ESR 1, the assessment of alternatives sought to avoid or minimise adverse environmental and social impacts at source, in accordance with the mitigation hierarchy. Within this framework, noise exposure and the extent of residential areas affected were key differentiating factors between site options.

The comparative assessment indicated that Site 4 results in relatively lower exposure of residential receptors to aircraft noise, including reduced interaction with densely populated areas when compared to other shortlisted sites. In contrast, alternative sites would have resulted in greater overlap with residential areas, thereby increasing the potential for both direct impacts (including displacement) and indirect impacts (such as long-term noise exposure).

On this basis, Site 4 was identified as the preferred option, as it provides a more favourable outcome in terms of minimising environmental and social impacts, particularly by reducing the number of people exposed to aircraft noise and associated disturbances. This reflects the application of the mitigation hierarchy, whereby impact avoidance has been prioritised through site selection, consistent with the objectives of IFC PS1 and EBRD ESR 1.

Based on the assessment of the 4 site options and using the scoring criteria mentioned above, Site 4 was selected as the most favourable as outlined in Table 2-9.

**Table 2-9 Alternatives Selection Outcome**

| Criteria | Site 1 | Site 2 | Site 3 | Site 4 |
|---|---|---|---|---|
| Total Score | 0.57 | 0.77 | N-Go | 0.83 |
| Overall Ranking | 3 | 2 | 4 (No-go) | 1 (Best) |

# 3.0 Regulatory Framework

## 3.1 National Regulations

### 3.1.1 Constitution of Uzbekistan

The Constitution of Uzbekistan has been amended following a referendum that took place on 30th of April 2023. Key constitutional reforms include:

- Uzbekistan is a legal, social, and secular state.
- Human rights may be restricted in order to maintain social morality and public order (for instance, homosexualism, considering cultural and religious perceptions of majority of population).
- Land can be private property (it is expected that more cases of owning land will be allowed, compared to the previous years when ownership status was granted in very few case).
- Prohibition of death penalty.
- Moreover, the following articles of the Constitution may be applicable for provisions relating to environmental and social aspects:
    - Article 30. No one shall be convicted, punished, deprived of property, or any other right on the basis of a law that is not publicly promulgated.
    - Article 40. Everyone shall have the right, both individually and collectively, to submit applications, proposals, and to lodge complaints with competent state bodies and organizations, citizens' self-governing bodies, officials and public representatives. Such applications, proposals and complaints shall be considered in accordance with the procedure and within the time-limit specified by law.
    - Article 41. Everyone shall have the right to own property. The privacy of bank operations, deposits, and accounts, as well as the right to inheritance shall be guaranteed by law.
    - Article 42: Everyone shall have the right to decent work, to free choice of profession and occupation, favourable working conditions that meet the requirements of safety and hygiene, to fair remuneration for work without any discrimination and not below the established minimum wage, as well as the right to unemployment protection in the manner prescribed by law. The minimum wage shall be determined taking into account the need to ensure a decent standard of living for a person. It shall be prohibited to refuse to hire women, dismiss them from work and reduce their wages on the basis of pregnancy or having a child.
    - Article 44: Any forced labour shall be prohibited, except as punishment under the court decision, or in some other Instances specified by law. Any form of child labour that poses a threat to the health, safety, morality, mental and physical development of the child, including those that prevent him or her from getting an education, shall be prohibited.
    - Article 49: Everyone shall have the right to a favourable environment, reliable information about its condition. The State shall create conditions for the implementation of public control in the field of urban planning activities in order to ensure the environmental rights of citizens and prevention of harmful environmental impact. Draft urban planning documents shall be subject to public discussion in the manner prescribed by law. The State, under the principle of

sustainable development, shall implement measures to improve, restore and protect the environment, maintain ecological balance.

- Article 58. Women and men shall have equal rights. The State shall ensure equal rights and opportunities for women and men in the administration of public and state affairs and in other spheres of social and state life.
- Article 61. It is the duty of citizens to protect the historical, spiritual and cultural scientific and natural heritage of the people of Uzbekistan. The historical, spiritual, cultural, scientific, and natural heritage shall be protected by the state.
- Article 62. Citizens shall be obliged to protect the environment.
- Article 65. The basis of the economy of Uzbekistan, evolving to enhance the well-being of citizens, shall be a property in its various forms. The State shall create the conditions for the development of market relations and fair competition, and guarantee the freedom of economic activity, enterprise and labour, taking into account the priority of consumer rights. Equality and legal protection of all forms of property shall be ensured in Uzbekistan. Private property shall be inviolable. An owner may not be deprived of his or her property except in the cases and according to the procedure prescribed by law and on the basis of a court decision.
- Article 66. An owner, at his/her discretion, shall possess, use and dispose of his/her property. The use of any property must not be harmful to the environment or violate the rights and legitimate interests of other persons, society and the state.
- Article 68. The land, its minerals, waters, flora and fauna, other natural resources shall constitute the national wealth and shall be rationally used and protected by the state. Land may be privately owned on the terms and in the manner prescribed by law, which ensure its rational use and protection as national wealth.

### 3.1.2 Law on Nature Protection, 1992 (as Amended in 2025)

This Law is the key national environmental law for the protection of the environment and the sustainable use of resources and the right for the population to a clean healthy environment. This law states legal, economic, and organisational basis for the conservation of the environment and the rational use of natural resources.

Article 24 of this law states that the State Environmental Expertise (SEE) is a mandatory measure for environmental protection, preceded to decision making process. In addition, the law prohibits the implementation of any Project without approval from SEE.

It should be noted that Article 53 of this law confirms that if an international treaty concluded by the Republic of Uzbekistan establishes rules other than those provided for by the legislation of the Republic of Uzbekistan on nature protection, the rules of the international treaty shall be applied, except in cases where the legislation of the Republic of Uzbekistan establishes stricter requirements.

### 3.1.3 Law on Environmental Control, 2013 (as Amended in in 2024)

The Law generally provides for the protection of the environment and natural (ecosystem) resources in Uzbekistan. The main objectives of this law include:

- Prevention, detection, and suppression of violation of legislative requirements relating to environmental protection and rational use of natural resources.
- Monitoring the state of the environment, identifying situations that can lead to environmental pollution, irrational use of natural resources, pose a threat to the life and health of citizens.

- Determination of compliance with environmental requirements of any ongoing economic development activities.
- Ensuring compliance with the rights and legitimate interests of legal entities and individuals performing their duties in relation to environmental protection and sustainable use of natural resources.

The Article 7 of this law states that, the objects of environmental control are:

- Land, its subsoil, waters, flora and fauna, and atmospheric air;
- Natural and man-made sources of impact on the environment; and
- Activities, action, or inaction that may lead to pollution of the environment and irrational use of natural resources, create a threat to the life and health of citizens.

### 3.1.4 Law on Ambient Air Protection" (1996, as amended in 2025)

This Law specifies regulations on air protection and its objectives. It also includes standards, quality and negative impact, norms, and requirements on fuels and lubricants, the production and operation of vehicles and other machinery and equipment, ozone layer protection requirements, the obligations of enterprises, institutions and organizations toward air protection, and compensations for damages from air pollution.

### 3.1.5 Law on Amendments and Additions to the Code of the RUz on Administrative Responsibility in Connection with the Establishment of Mandatory Requirements for the Elimination of Dust and Sand Particles Rising into the Air at Construction Sites" (2025)

This Law introduces amendments and additions to the Code of the Republic of Uzbekistan on Administrative Liability, establishing liability for failure to comply with air quality protection requirements at construction sites. It will improve the environmental situation, prevent air pollution, and increase the environmental responsibility of construction organization officials.

### 3.1.6 Law on Wastes (2002, amended in 2023)

This Law addresses waste management, exclusive of emissions and air and water pollution, and confers authority to the NCECC concerning inspections, coordination, and environmental expertise. It also establishes certain parameters regarding locations for waste disposal. The key objective of this law is to prevent negative effects of solid wastes on people's lives and health, as well as on the environment, reduce waste generation, and encourage rational use of waste reduction methods in household activities.

### 3.1.7 Water Code of the Republic of Uzbekistan (2025)

This Code regulates relations in the field of use, protection, and management of water resources. It establishes the legal framework for state governance of water resources, defines the rights and obligations of water users, and ensures the rational, sustainable use and protection of waters from pollution, depletion, and harmful impacts.

### 3.1.8 Law on the Protection and Use of Flora" (2016, amended in 2024)

This Law regulates relations in the field of protection and use of the plant world growing in natural conditions, as well as wild plants contained in the conditions of culture for their reproduction and conservation of genetic resources.

### 3.1.9 Law on Amendments and Additions to Certain Legislative Acts of the RUz Aimed at Strengthening the Protection of Fauna and Flora" (2024)

This Law regulates the strengthening of protection of flora and fauna by introducing amendments and additions to the Criminal Code, the Code of Administrative Responsibility, and other legislative acts.

### 3.1.10 Law on Protection and Use of Wildlife" (2016, amended in 2024)

This Law regulates relations in the field of protection, use, restoration and reproduction of wildlife in order to ensure the conditions of its existence, conservation of species diversity, integrity of natural communities and habitat.

### 3.1.11 Law on Protected Natural Areas" (2004, amended in 2025)

The purpose of this Law is to regulate relations in the field of organization, protection and use of protected natural areas.

### 3.1.12 Law on Amendments and Additions to the Law of the RUz "On forests" (2018, amended in 2025)

This Law introduces updates to the national forestry legislation aimed at improving the legal framework for sustainable forest management, strengthening forest protection and restoration measures, and enhancing the rational use and conservation of forest resources.

### 3.1.13 Law on Environmental Audit (2021, amended in 2024)

The Environmental Audit Law was adopted to regulate environmental audits in the field of environmental protection and rational use of natural resources, including voluntary or mandatory environmental audits. The Law states that '*an environmental audit can be carried out on a voluntary form by businesses with low or insignificant (local) risk of environmental impact and on a mandatory form on an annual basis for businesses with high and medium risk of environmental impac*t'.

An environmental audit is not a substitute for environmental control; however, in case of a positive conclusion of the audit, a business entity is not subject to an inspection by the State Committee on Ecology and Environmental Protection for one year, except for accidents and emergencies, as well as in connection with the investigation of criminal cases or by order of the President of the Republic of Uzbekistan or the Cabinet of Ministers of the Republic of Uzbekistan. The environmental audit is carried out on the basis of a contract concluded between the environmental auditing organisation and the client of the environmental audit. The Law came into force in March 2022."

### 3.1.14 Presidential Decree No. 5863 on Environmental Protection Strategy (2019, amended in 2024)

The Strategy contains measures to preserve the environment (atmospheric air, water, land, soil, subsoil, biodiversity, protected areas) from anthropogenic impact and other negative factors, expand protected areas, and improve the environmentally safe system of waste management.

The Strategy approved 24 target tasks until 2030, which aim to increase the area of forest plantations, restoration and reclamation of disturbed lands, rational use of water resources, reduction of emissions into the air, protection and reproduction of biological resources, and improvement of the waste management system.

Through the implementation of the Strategy, the following are expected to be achieved:

- Increasing the area of forest plantations on the Uzbek part of the dried Aral Sea bed from 28% (0.9 million ha) to 60% (2 million ha);
- Reduction of pollutant emissions by 10% (from 2.492 million to 2.243 million tonnes);
- Converting 80% (about 6,500) of public transport to natural gas and electric propulsion;
- Increasing the area covered by forest from 3.2 million to 4.5 million hectares;
- Increasing the area of protected areas from 3.5 percent (1.5 million hectares) to 12 percent (5.4 million)
- Increasing the coverage of solid domestic waste collection and transportation services from 48% (16 million people) to 100%;
- Increasing solid domestic waste processing from 18% (1.3 million tonnes) to 65% (4.6 million tonnes).

### 3.1.15 International Civil Aviation Organization (ICAO) Standards

The International Civil Aviation Organization (ICAO) is a United Nations agency which helps 193 countries to cooperate together and share their skies to their mutual benefit. One of the main functions of ICAO is the development and adoption of international Standards for uniform application in global civil aviation. Such Standards are currently set out in 19 Annexes to the Chicago Convention.

On July 3, 1992, the Parliament of Uzbekistan ratified the Convention on International Civil Aviation (Resolution of the Supreme Council No. 666-XII of July 3, 1992) and on November 12, 1992, the Republic of Uzbekistan became a full member of the ICAO, having assumed the relevant obligations. Aviation regulations of the Republic of Uzbekistan and other regulatory documents in the field of civil aviation of the republic are adopted on the basis of international ICAO standards. The requirements set by ICAO will also be used as a basis for environmental quality standards at airports.

## 3.2 Other Environmental Laws and State Regulatory Standards

The following laws focused on the protection of specific environmental/ natural resource elements are in effect and applicable to the Project.

- The Law “On the sanitary and epidemiological well-being of the population” (2015, as amended in 2023).
- The Resolution of the Cabinet of Ministries of the Republic of Uzbekistan №541 “On further improvement of the environmental impact assessment mechanism’ (2020, as amended in 2024).
- The Resolution of Cabinet of Ministries of the Republic of Uzbekistan №820 “On measures to further improve the economic mechanisms for ensuring nature” (2018, as amended in 2025).
- The Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No 14. “On approval of the regulation on the procedure for the development and agreement of projects with environmental standards” (2014, as amended in 2018).
- Resolution of Cabinet of Ministers of Republic of Uzbekistan No.95 “On approval of general technical regulations of environmental safety” (2020, as amended in 2022).
- SanR&N No 0350-17 - Sanitary rules and norms for the protection of atmospheric air in places of the Republic of Uzbekistan;
- SanR&N No 0339-16 - Sanitary rules and norms for planning and development of populated areas of Uzbekistan;

- SanR&N No 0083-24 – Sanitary rules, norms and hygienic standards for the protection of underground and surface water bodies;
- SanR&N No 0202-06 - The procedure for issuing permits for special water use, development and approval of projects of maximum permissible discharges (MPD) of substances entering with wastewater into water bodies and on the terrain;
- SanR&N No 0053-23 – “Hygienic standards. The list of maximum permissible concentrations of pollutants in the ambient air of settlements in the territory of the RUz”;
- SanR&N No 0212-06 - Hygienic assessment of the degree of soil pollution of different types of land use under specific conditions of Uzbekistan;
- SanR&N No 0183-05 - Hygienic requirements for the quality of the soil in settlements areas in specific natural and climatic conditions of Uzbekistan;
- O’zMSt 133:2024 - National Standard of Uzbekistan. Drinking water. Hygienic requirements and quality control;
- O'zDSt 1057:2004 - Vehicles. Safety requirements for technical conditions;
- CR&N No 2.01.08-96 - Noise protection;
- CR&N No 3.01.02-00 - Construction Safety Standards.

### 3.2.1 Laws relating to Land Rights, Acquisition, and Resettlement

The following laws govern the process of land tenure, expropriation, and reallocation in Uzbekistan.

- Civil Code of the Republic of Uzbekistan (1997, as amended in 2025);
- Land Code of the Republic of Uzbekistan (1998, as amended in 2025, and with ongoing amendments);
- Law of the Republic of Uzbekistan on State Land Cadastre No.666-I (1998, as amended in 2025);
- Presidential Decree № UP-5495. Decree “On measures on cardinal improvement of investment climate in the Republic of Uzbekistan" (2018, as amended in 2024);
- Appendix No. 2 to the Resolution of the Cabinet of Ministers No. 146 (2011, as amended in 2024), regulation “On the Procedure for Compensation for Losses of Land Owners, Users, Tenants and Owners, as well as Losses of Agricultural and Forestry Production”;
- Resolution No. 911 of the Cabinet of Ministers (2019, as amended in 2024) “On the Procedure for withdrawal of land plots and compensation to owners of immovable property located on the land plot;
- Presidential Decree No. DP-6243, “On measures to ensure equality and transparency in land relations, reliable protection of rights to land and their transformation into market assets” (2021, as amended in 2025);
- Law No 781 “On procedures for the withdrawal of land plots for public needs with compensation” (2022, as amended in 2024).

### 3.2.2 Laws Relating to Labour and Employment

The following laws pertain to the recruitment and management of labour in Uzbekistan, and the protection of labour rights within the workplace.

- Labour Code of the Republic of Uzbekistan (1996, as amended in 2025)

- Law “On the employment of the population” No. 642 (2020, as amended in 2025);
- Decree of the Cabinet of the Ministers No. 965 "On the measures of further improvement of the procedure of establishment and reservation of minimum number of job places for the job placement of persons who are in need of social protection and face difficulties in searching employment and incapable of competing in labour market with equal conditions" (2017, as amended in 2020);
- Decree of the Cabinet of the Ministers No. 964 "On the measures for further improvement of the activity of self-government bodies aimed at ensuring employment, firstly for the youth and women" (2017, as amended in 2025).

### 3.2.3 Law Relating to Archaeology and Cultural Heritage

The laws pertaining to the exploration, protection and preservation of archaeological resources and cultural heritage sites in Uzbekistan are listed below.

- Constitution of the Republic of Uzbekistan, the Criminal Code of the Republic of Uzbekistan (2023);
- Law “On protection and use of the objects of archaeological heritage” (2009, as amended in 2021);
- Law “On protection and use of cultural heritage (2001, as amended in 2022).

## 3.3 Management of Public Grievances

The Law LRU-445 “On Amendments and Additions to the Law of the Republic of Uzbekistan "On Appeals of Individuals and Legal Entities" (2017, as amended in 2024). The purpose of this Law is to regulate the procedures and relations concerning appeals submitted by individuals and legal entities to state bodies, state institutions, and their officials. It also applies to organizations with state participation and citizen self-governance bodies.

However, this Law does not apply to appeals governed by specific procedures established under other legislative frameworks, including those related to administrative liability, civil, criminal, and economic procedural laws, as well as criminal-executive legislation and other relevant legal acts.

In addition to the above, the Law regulates the appeals of individuals and legal entities to state bodies as well as to their officials. Appeals can be oral, written, or electronic and regardless of their form and type are of equal importance. A people’s ‘Reception Office’ is tasked with organising a direct dialogue with the population, ensuring the functioning of an effective system of appeals aimed at the full protection of their rights, freedoms and legitimate interests. Any applications are considered within 15 days from date of receipt, and any additional consideration is completed within 1 month.

## 3.4 International Conventions and Protocols

Uzbekistan is signatory to a number of effective international conventions pertaining to environmental management, social sustainability, climate change and human rights. The nationally binding E&S commitments enshrined in these accords will apply to the Project, as listed in Table 3-1.

**Table 3-1 International Protocols and Conventions**

| Name of International Protocol/Convention | Signed/ Ratified | Relevance to the Project |
|---|---|---|
| UN Framework Convention on Climate Change | Accession: 20 June 1993 | The Project will comply with all national standards for GHG emissions in order to contribute to Uzbekistan's targets. |
| Kyoto Protocol to UNFCCC | Ratified: 12th October 1999 | |
| Paris Agreement to UNFCCC | Signed: 19th April 2017 | |
| Montreal Protocol on Substances that Deplete the Ozone Layer (with London, Copenhagen, Montreal amendments) | Accession: 10th June 1998 | The Project will support Uzbekistan's contribution towards the protection of the ozone layer by refraining from use of ozone depleting substances. |
| Vienna Convention on the Protection of Ozone Layer | Accession: 18 May 1993 | |
| UN (Rio) Convention on Biological Diversity | Accession: 19th July 1995 | The Project will implement mitigation and management measures to ensure the conservation and protection of terrestrial and canal ecology during the Project lifecycle. |
| Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) | Accession: 10th July 1997 | The Project staff and workers will be strictly forbidden from trading in any wild flora and fauna found in the Project site or outside the Project boundaries. |
| Convention on Migratory Species of Wild Animals | 1 May 1998 | The project will implement mitigation and management measures to ensure conservation of terrestrial and avian migratory species where identified. |
| Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal | Accession: 7th February 1996 | The Project will be required to adhere to all national and international standards for hazardous waste generation and management. |
| United Nations Convention to Combat Desertification | Ratified: 31 August 1995 | The Project will not result in accelerated desertification through sourcing of its materials and will contribute to sustainable development. |
| UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes | Accession: 4th September 2007 | The canal south of the project site is found between the border of Uzbekistan and Tajikistan. Therefore, the Project will ensure that any impacts to the canal I.e. discharge are mitigated and managed in accordance with the national and lenders requirements. |
| Paris Convention on Protection of the World Cultural and Natural Heritage | Succession: 13th January 1993 | The Project will implement mitigation and management measures where items/sites/monuments of cultural or natural heritage are identified within or near the Project |

| Name of International Protocol/Convention | Signed/ Ratified | Relevance to the Project |
|---|---|---|
| | | boundaries and notify the relevant authorities immediately. |
| Stockholm Convention on Persistent Organic Pollutants | Accession: 28th June 2019 | The Project will implement control measures to eliminate any use of chemicals under Annex A and B and reduce the unintentional release of those under Annex C. |

## 3.5 Institutional Framework

Key organisations with responsibility for environmental management in Uzbekistan are:

- National Committee on Ecology and Climate Change of Republic of Uzbekistan (NCECC)[3].
- The Centre for State Ecological Expertise, which is under the NCECC.
- The Cabinet of Ministers of the Republic of Uzbekistan governs the executive body in the Republic of Uzbekistan following the Constitution of the Republic of Uzbekistan (Article 98), and the Law of the Republic of Uzbekistan “On the Cabinet of Ministers of the Republic of Uzbekistan” (new edition of 2019). The COM exercises the following main functions.

The National Committee on Ecology and Climate Change of Republic of Uzbekistan (NCECC) is the main regulating body of state administration on environmental protection issues. The primary responsibilities of the NCECC include ensuring the implementation of a unified state policy on environmental safety, environmental protection, and the use and reproduction of natural resources; and enforcing state control over the compliance of ministries, state committees, departments, enterprises, institutions, and organisations, as well as individuals, with respect to the use and protection of land, mineral resources, water, forests, flora and fauna, and atmospheric resources. Structurally, the NCECC consists of the central unit (located in Tashkent), regional units (viloyat) and local (district) units.

The Centre for State Ecological Expertise: The Centre for State Ecological Expertise's activities are directly related to the evaluation of materials for EIA and the issuance of documents determining compliance with environmental requirements for planned or executed business and other activities, as well as determining the admissibility of the implementation of the object of environmental expertise.

Due to the cross-cutting nature of sustainable development and the environment, virtually all other state bodies have some responsibility towards them. Other Ministries, Departments and Agencies (MDAs) related to E&S impact management will also contribute to the Project.

**Table 3-2 Main National Institutions and Roles**

| Name of Institution | Main Role |
|---|---|
| Ministry of Transportation of the Republic of Uzbekistan | The Ministry of Transportation of the Republic of Uzbekistan is the authorised state body for implementation of current Project from the side of GoU |

[3] In accordance with UP-217 "On measures to create a management system for promptly responding to public demands in the areas of ecology and tourism" dated November 18, 2025, the Ministry of Ecology and Environmental Protection and Climate Change (MEEPCC) was renamed to the National Committee on Ecology and Climate Change of Republic of Uzbekistan (NCECC).

| Name of Institution | Main Role |
|---|---|
| National Committee on Ecology and Climate Change of Republic of Uzbekistan | National Committee is responsible for managing environmental monitoring for industrial facilities. It reviews and issues technical conditions for construction and operation of facilities, both planned and existing. |
| Sanitary and Epidemiological Welfare and Public Health Service of The Republic of Uzbekistan | Responsible for determining the Health Protection Zone (HPZ) under the Ministry of Health. The HPZ applicable for the Project is determined this government organisation. |

## 3.6 Requirements for National EIA

The national environmental assessment procedure is regulated by the law "On Environmental Review, Environmental Impact Assessment, and Strategic Environmental Assessment" (2025) and the regulation “On Further Improvement of the Environmental Impact Assessment Mechanism”, approved by Resolution of the Cabinet of Ministers No. 541 (2020, last amended 2024). The resolution specifies the legal requirements for environmental assessment documents in Uzbekistan. According to the Law, environmental assessment is a procedure aimed at establishing the compliance of the planned and (or) planned or implemented economic and other activities with environmental requirements and determining the admissibility or inadmissibility of the implementation of the object of environmental assessment.

The environmental assessment stages and their required results are summarized as follows:

**Stage I**: A Preliminary Environmental Impact Statement shall be prepared during preparation of a proposed project prior to any fund allocation for development.

**Stage II**: An Environmental Impact Statement shall be carried out on a basis of a conclusion of the environmental expertise issued at the first stage of the assessment. The second stage of the assessment is also submitted to the CSEE, and the conclusion must be received before the start of construction.

**Stage III**: State Environmental Consequences is the final stage of the SEE process and shall be carried out prior to the project start. The report will include (i) a detailed description of changes to be made to the project design as a result of the CSEE review during the first two stages of the environmental assessment process, (ii) comments received during public consultations, (iii) environmental standards applicable to the project, (iv) environmental monitoring requirements related to the project, and (v) the key opinion.

Before start of any construction works it is necessary to obtain permission – positive conclusion from NCECC for Stage I, and if required from Stage II.

Commissioning and operation of Projects is possible only after receipt of permission – positive conclusion for Stage III.

**Public Participation in National EIA**

Based on changes in the national legislation regarding the national EIA process, public consultation is now a mandatory part of the first EIA stage.

According to the Resolution of the Cabinet of Ministries of the Republic of Uzbekistan on “Further Improvement of the Environmental Impact Assessment Process” No. 541 dated 7th September 2020, the procedure of conducting public consultations is as follows:

- Annex 3 of the Resolution No 541 – Rules and regulations for conducting public consultations states that public consultations should include discussions and decision

making regarding planned activities (for construction of any facility) that may have negative impacts on the environment.

- A non-technical summary regarding any planned project activity that is categorized as I & II group (in accordance with national requirements for categorization) shall be prepared. The NTS should include information about the following:
  - Brief description of the project.
  - Technology solutions and alternative options for the project.
  - Current state of the environment at the selected project site.
  - A brief assessment of socio-economic conditions.
  - Brief description of the causes and type of negative impacts on the environment as a result of the project.
  - Forecast and assessment of possible changes in the state of the environment, socio-economic conditions.
  - Forecast and assessment of project and non-project risks.
  - Measures to prevent, minimise and/or compensate for adverse impacts; and
  - Assessment of possible significant adverse cross-border impacts.
- A public consultation shall be based on the review of non-technical summary by providing equal rights to all participants to express their concerns, opinions, and suggestions.
- The following entities shall be considered as part of public consultations:
  - Representatives of local departments of State Committee on Ecology and Environmental Protection who will be considered as observers of public consultations.
  - Local municipalities (considered as the responsible organisation for organising and inviting participants to the meetings).
  - NGOs'.
  - All organisations interested in the project.
  - Local communities.
  - Mass media.
- Expenses, if any, related to the public consultations are to be financed by the Project Developer.

In addition to the above national requirements on conducting public consultations, the Law of the Republic of Uzbekistan "Regarding Appeals of Individuals and Legal Entities" No 378 dated 3.12.2014 (with amendments on 17th August 2017) and the new edition of this law, the Law of the Republic of Uzbekistan "On Amendments and Additions to the Law of the Republic of Uzbekistan "On Appeals of Individuals and Legal Entities" No 445 dated 12.09.2017 (with amendments on 21 September 2024), regulates the appeals of individuals and legal entities to state bodies as well as to their officials. Appeals can be oral, written, or electronic and regardless of their form and type are of equal importance. A people's "Reception Office" is tasked with organising a direct dialogue with the population, ensuring the functioning of an effective system of appeals aimed at the full protection of their rights, freedoms and legitimate interests. Any applications are considered within 15 days from date of receipt, and any additional consideration is completed within 1 month.

## 3.7 Lenders' Requirements

Project finance from lenders will necessitate compliance with certain internal policies/safeguards to protect lenders investments from environmental and social risks. Where such policies/safeguards are not developed internally by the banks, it is expected that the lenders may be signatories of voluntary agreements such as the Equator Principles.

Based on the target lenders, the requirements of the lenders are initially interpreted herein as meaning the standards and guidelines set out by:

- International Finance Corporation (IFC) – Performance Standards;
- European Bank for Reconstruction and Development (EBRD) – Environment & Social Policy and Environmental and Social Requirements (ESRs);

All of the above require a certain level of environmental assessment, including various considerations and on-going environmental management throughout the Project lifetime.

### 3.7.1 IFC Performance Standards

***Note:*** *As also applied by EPIV, OECD Common Approaches and other lenders.*

The IFC Performance Standards and World Bank Group EHS Guidelines are applicable on IFC financed projects but are also necessary for compliance under Equator Principles Financial Institution financed projects (ref. EP 3), and projects financed by Export Credit Agencies (under the OECD Common Approaches). IFC Performance Standards (PS) (2012) are set out below:

- PS1 - Assessment and Management of Environmental and Social Risks and Impacts
- PS2 - Labour and Working Conditions
- PS3 - Resource Efficiency and Pollution Prevention
- PS4 - Community, Health, Safety & Security
- PS5 - Land Acquisition and Involuntary Resettlement
- PS6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources
- PS7 - Indigenous people
- PS8 - Cultural Heritage.

### 3.7.2 WBG/IFC EHS Guidelines and Sector Specific Guidelines

- WBG/IFC EHS Guidelines with particular relevance to:
  - WBG/IFC General EHS Guidelines (2007);
  - WBG/IFC Industry Sector EHS Guidelines, Airports (2007).

### 3.7.3 EBRD E&S Policy and E&S Requirements:

The latest E&S Policy of EBRD (Oct 2024) and their Environmental and Social Requirements (ESR) are outlined below:

- ESR1 - Assessment and Management of Environmental and Social Risks and Impacts
- ESR 2 - Labour and Working Conditions
- ESR 3 - Resource Efficiency and Pollution Prevention and Control
- ESR 4 - Health, Safety and Security

- ESR 5 - Land Acquisition, Restriction on Land Use and Involuntary Resettlement
- ESR 6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources
- ESR 7 - Indigenous People
- ESR 8 - Cultural Heritage
- ESR 9 - Financial Intermediaries, and
- ESR 10 - Stakeholder Engagement.

#### 3.7.3.1 European Union Substantive Environmental Criteria

The EBRD E&S Policy requires EBRD-financed projects to be structured in line with relevant European Union (EU) environmental principles, practices and substantive standards, where these can be applied at project level, irrespective of the geographical location of the Project.

Accordingly, the relevant technical chapters of this ESIA have considered applicable national legislation, international good practice and, where relevant, EU substantive environmental requirements to inform the assessment methodology and the identification of mitigation measures. The applicability of specific EU substantive requirements has been considered in the context of the nature, scale and characteristics of the Project and the corresponding technical discipline.

A screening of the relevant EU substantive environmental requirements considered in the preparation of this ESIA is provided later within this chapter.

### 3.7.4 DFC Environmental and Social Policy

The U.S. International Development Finance Corporation (DFC) Environmental and Social Policy and Procedures (ESPP, 2024) establishes the framework for ensuring that DFC-supported projects are environmentally and socially sustainable. The policy is aligned with international best practice and adopts the IFC Performance Standards and WBG EHS Guidelines as its core requirements.

DFC applies a risk-based approach to project assessment, including screening, categorisation (Category A, B, or C), and proportional environmental and social review based on the scale and significance of potential impacts. Projects are required to identify and manage risks across the full project lifecycle, including construction, operation, and decommissioning.

Climate considerations are integrated into project evaluation, including greenhouse gas accounting, energy efficiency, and climate resilience, alongside alignment with low-carbon development pathways.

Overall, the DFC ESPP ensures that projects are developed in a manner that is environmentally sound, socially responsible, and consistent with international standards, while promoting sustainable development outcomes.

### 3.7.5 KEXIM E&S Policy

KEXIM's E&S policy is a comprehensive approach to managing the environmental and social impacts of its financed projects. The bank's E&S due diligence process involves assessing historical E&S related risk incidents and relevant reputations of project parties, which is crucial for the internal credit approval process. KEXIM has established a department dedicated to E&S related tasks and has developed an ESG roadmap covering its overall day-to-day operations. The bank also participates in multilateral discussions and shares knowledge with other government agencies and international organizations to address E&S issues.

### 3.7.6 JBIC E&S Policy

JBIC has established the Guidelines for Confirmation of Environmental and Social Considerations, which provide the framework for ensuring that JBIC-supported projects are developed in an environmentally and socially responsible manner. The current version of the Guidelines came into effect in July 2022 and is aligned with international good practice, including reference to the IFC Performance Standards and the WBG EHS Guidelines.

The Guidelines apply a risk-based approach to project screening and categorisation (Category A, B, C, and FI), considering the scale, location, sensitivity, and potential environmental and social impacts of projects. JBIC's review process considers direct, indirect, cumulative, and associated facility-related impacts, as well as impacts throughout the project lifecycle, including construction, operation, and decommissioning.

### 3.7.7 NEXI E&S Policy

The environmental and social framework of NEXI is set out in its Guidelines on Environmental and Social Considerations in Trade Insurance, which establish the requirements for assessing and managing environmental and social risks associated with projects supported by NEXI. The Guidelines are aligned with international good practice and reference international standards, including the IFC Performance Standards, OECD Common Approaches, and relevant international environmental and social frameworks.

### 3.7.8 OECD Common Approaches

The Recommendation sets out Common Approaches for undertaking environmental and social due diligence to identify, consider and address the potential environmental and social impacts and risks relating to applications for officially supported export credits as an integral part of Adherents' decision making and risk management systems. This includes the following steps by Adherents:

- **Screening**, with the aim of identifying which applications for officially supported export credits should be classified and, where appropriate, subsequently reviewed;
- **Classification** to identify the potential positive and negative environmental and social impacts, using three categories for the classification of applications (Category A, B and C projects. An illustrative list of Category A projects is set out in Annex I of the Recommendation);
- **Environmental and Social Review**, undertaken in accordance with the international standards applied to the project as set out in the Recommendation;
- **Evaluation, Decision and Monitoring**, resulting from the screening and review of projects;
- **Exchange and Disclosure of Information** to share experiences and exchange information with other Adherents, financial institutions and the wider public; and
- **Reporting and Monitoring of the Recommendation** to build a body of experience on the application of the Recommendation through regular reporting and exchanges of information with the aim of improving common practices, developing guidance, and promoting a level playing field.

### 3.7.9 Other Applicable Environmental and Social Standards

Besides those outlined above, the RFP also highlights that the following standards should be considered as part of the scope of work:

- ''Chicago Convention'' - Convention on International Civil Aviation (CICA), in particular Annex XVI Volume IV on Environmental Protection;

- United Nations, International Civil Aviation Organization (ICAO) Documents and Resolutions:
  - Doc. 9829, the Balanced Approach to Aircraft Noise and including Resolution A39-1 on ICAO Circular Community Engagement on Aviation Environmental Management complementing the current policy of aircraft noise management at and around airports
  - ICAO factsheets Water Management at Airports, Aviation and Changes to Biodiversity, Aviation and Precipitation;
- United States Federal Acts, Codes, Agencies and Regulations:
  - United States Federal Aviation Administration (FAA), Code of Federal Regulations (CFR), Federal Aviation Regulation (FAR) 14, parts 150 and 161 on noise and planning for noise at airports and other relevant parts;
  - United States FAA Consultant Circulars;
  - United States Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQS);
  - United States Occupational Health and Safety Administration (OSHA)
- Airport Council International (ACI) World ESG Management Best Practices
- International Organization for Standardization (ISO)

### 3.7.10 Screening Against EU Substantive Environmental Requirements

Table 3-3 summarises the principal EU environmental legislation considered, its relevance to the Project, and where the corresponding requirements have been addressed within this ESIA. The screening is intended to demonstrate consideration of the relevant EU substantive environmental requirements and does not constitute a formal legal compliance assessment against the full body of EU environmental legislation.

Detailed consideration of the relevant requirements is presented within the relevant technical chapters.

**Table 3-3 EU Substantive Requirements Screening**

| Topic | Relevant EU Substantive Requirements | Assessment Outcome |
|---|---|---|
| Air Quality | Ambient Air Quality Directives | Relevant ambient air quality standards as per EU Directive 2008/50/EC used in the air quality assessment in addition to national standards and WHO guidelines. |
| Noise | Environmental Noise Directive (principles) | Noise assessment undertaken using international practice. A Noise Management Framework will be prepared for the airport operation which follows the substantive requirements of ESR 3 and relevant EU-aligned good practice. |
| Water | Water Framework Directive (principles) | Surface water protection measures incorporated. |
| Waste | Waste Framework Directive | Waste hierarchy adopted; waste management plan to be developed. |
| Biodiversity | Habitats/Birds Directives (principles) | Critical habitat assessment undertaken using IFC PS6. |

| Topic | Relevant EU Substantive Requirements | Assessment Outcome |
|---|---|---|
| Climate | EU climate objectives | GHG assessment and climate resilience completed. |

# 4.0 Approach to the ESIA

## 4.1 Scope of Assessment

**Assessment of the Airport Facilities and Operational Activities**

The primary study area comprises the Project footprint, which includes, the land, proposed physical structures, equipment and construction/operational activities inside this area. This also includes the access road.

The ESIA assesses the operational phase impacts that will result from the typical operations of the airport, whilst establishing provisions to manage environmental and social effects of reasonably foreseeable potential emergency situations.

While the sponsors scope for the project is limited to the Landside development comprising of the Terminal, the ESIA has been undertaken for the entire scope of the Project including the Public Partner's scope which includes the Airside development.

As outlined earlier in this report, the airport is planned to initially accommodate up to 20 MAP as part of the currently defined development phase. A potential future expansion to increase capacity to approximately 46 MAP has been conceptually identified for the long-term. However, this expansion is beyond the current planning horizon and remains subject to multiple uncertainties, including future passenger demand, regulatory approvals, financing arrangements, and detailed design development. As such, it is not considered reasonably certain at this stage.

Accordingly, the scope of this ESIA is limited to the initial development phase (up to 20 MAP), based on defined design parameters and operational assumptions. All assessments presented in this ESIA (including air traffic movements, noise, air quality, and associated impacts) are aligned with this development scenario to ensure consistency.

Should the future expansion be confirmed, a separate environmental and social assessment will be undertaken in accordance with applicable national and international requirements to assess the potential impacts associated with increased capacity.

## 4.2 Impact Assessment and Significance Criteria

In order to obtain a credible assessment of environmental and social impacts, the assignment of "effect significance" to each identified impact needs to be a robust, consistent and transparent process. The methodology to assess 'effect significance' is outlined below and follows an International Best Practice based on the assumption that the significance of an impact on resources or receptors is considered to result from an interaction between three factors:

- The nature and magnitude of the impact (i.e. a change in the environment, social and/or health baseline conditions);
- The number of resources or receptors affected (i.e. humans and the environment); and
- The environmental value or sensitivity of those resources or receptors to the change.

A three-step approach has been used to determine the significance of environmental effects, as follows:

- Step 1 – Evaluation of value/sensitivity of resource or receptor;
- Step 2 – Assessing the magnitude of the impact on the resource or receptor; a
- Step 3 – Determining the significance of effects.

**Identification And Evaluation of Sensitive Receptors**

Sensitive receptors are defined as:

- Elements of the ***environment*** that are of value to the functioning of natural systems (i.e. areas or elements of ecological, landscape or heritage value, species, habitats and ecosystems, soil, air and water bodies or land-use patterns);
- ***Human*** receptors, such as stakeholders (i.e. users of dwellings, places of recreation, places of employment, community facilities or household relocation) and human systems (e.g. employment market, population disease susceptibility and disease communicability, exposure to toxicity of chemicals).

**Table 4-1 Environmental Value of Receptor or Resources**

| Sensitivity | Description of Value |
|---|---|
| **Very High** | • High importance and rarity on an international scale and limited or no potential for substitution.<br>• The receptor has already reached its carrying capacity, so any further impact is likely to lead to an excessive damage to the system that it supports (e.g., very limited or non-existent infrastructure and services such as hospitals and schools, available natural, economic or local resources are not sufficient to provide means of livelihoods for all local populations).<br>• Locations or communities that are highly vulnerable to the environmental and social impact under consideration or critical for society (e.g., indigenous peoples, hospitals, schools).<br>• Other examples are very high proportion of vulnerable groups (women, elderly, disabled, etc.) in the Project area, very frequent occurrences of gender-based violence, very low probability of female participation in decision making and in the labour market, archaeological items of international importance or designated UNESCO world heritage sites, tangible or intangible cultural assets that contribute to international research objectives, etc. |
| **High** | • High importance and rarity on a national scale, and limited potential for substitution.<br>• The receptor is close to reaching its carrying capacity, so a further impact may lead to a significant damage to the system that it supports (e.g., poor or limited public infrastructure and services, with limited access and high pressure on existing natural or economic resources available).<br>• Locations or communities that are particularly vulnerable to the environmental impact under consideration (e.g., residential areas, vulnerable/marginalized groups).<br>• Other examples are high proportion of vulnerable/marginalised groups (women, elderly, disabled, etc.), locations with poor health practices, poor education level, high crime rate, frequent occurrences of gender-based violence, tangible or intangible cultural assets that contribute to national research objectives, etc ). |
| **Medium** | • High or medium importance and rarity on a regional scale, limited potential for substitution.<br>• The receptor is already significantly impacted, but it is not close to reaching its carrying capacity. Further impacts will get increase the stress of the underlying system, but evidence does not suggest that it is about to reach a critical point (e.g., public infrastructure and services with some capacity, alternative natural or economic resources are available but not sufficient or easily accessible).<br>• Locations or groups that are relatively vulnerable to the environmental impact under consideration (e.g., commercial areas).<br>• Other examples area: average proportion of vulnerable/marginalised groups, occasional occurrences of gender-based violence, tangible or intangible cultural assets that contribute to regional research objectives, etc). |
| **Low** | • Low or medium importance and rarity on a local scale. |

| Sensitivity | Description of Value |
|---|---|
| | • The receptor is not significantly impacted and shows a large spare carrying capacity. Impacts are not likely to generate any noticeable stress in the underlying system (e.g., reasonable public infrastructures and services, sufficient natural, economic, or local resources available but not easily accessible).<br>• Locations or groups that show a low vulnerability to the environmental impact under consideration (e.g., industrial areas).<br>• Other examples are low proportion of vulnerable/marginalised groups, rare occurrences of gender-based violence, tangible or intangible cultural assets that contribute to local research objectives, etc). |
| **Very Low** | • Very low importance and rarity on a local scale.<br>• The receptor is not impacted and shows a very large spare carrying capacity. Impacts are very unlikely to generate any noticeable stress in the underlying system (e.g., very good public infrastructures and services with some capacity, equivalent natural, economic, or local resources available and easily accessibly).<br>• Locations or groups that show a very low vulnerability to the environmental impact under consideration (e.g., industrial areas).<br>• Other examples are very low proportion of vulnerable/marginalised groups, no occurrence of gender-based violence, tangible or intangible cultural assets that are not legally protected and have no significance to local people (i.e. local people no longer use the cultural asset, etc). |

### Identification and Evaluation of Potential Impacts

During the evaluation undertaken, the following types of impacts will be considered:

- Direct Impacts - Potential impacts that may result from the construction, commissioning, and operations of the Project acting directly on an environmental or social receptor;
- Indirect Impacts – Potential impacts which are not a direct result of a Project activity, that may be realised later in time or at distances further removed from the project footprint, but are normally a result of a complex pathway;
- Cumulative Impacts – Changes to the environment that are caused by an action in combination with other past present and future actions.
- Beneficial Impacts – Those impacts that have a positive, desirable or favourable effect on the sensitive resources or receptors (e.g. landscape providing artificial habitat for a variety of species, jobs opportunities during the construction and/or occupation phases of a project);
- Adverse Impacts – Those impacts that are detrimental and have a negative influence on the environment, social structures, resources or other receptors;
- Secondary Impacts - Potential impacts that may result from the implementation of protection measures applied to mitigate potential direct impacts; and
- Event Related Impacts - Potential unplanned or accidental impacts stemming from an unintentional event such as fire, explosion, oil spill, etc.

### Defining Impact Magnitude

The magnitude of the impact will be defined wherever possible in quantitative terms. The magnitude of an impact has a number of different components, for example:

- The extent of physical change;
- The level of change in an environmental condition;

- The permanence of impact and the reversibility of the impacted condition;
- Its spatial footprint;
- Its duration, its frequency; and
- Its likelihood of occurrence where the impact is not certain to occur.

Where necessary, the determination of impact magnitude has been assisted through the use of computer modelling. The criteria used for identifying the magnitude of impacts is provided in Table 4-2.

**Table 4-2 Criteria for Magnitude of Impacts**

| Magnitude | Description of Magnitude |
|---|---|
| **Major** | Adverse: Loss of resource and/or quality and integrity; severe damage to key characteristics, features or elements. A major impact is usually large scale, permanent and irreversible.<br>Beneficial: Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality. |
| **Moderate** | Adverse: Significant impact on the resource but not adversely affecting the integrity; Partial loss of/damage to key characteristics, features or elements. Moderate impacts usually extend above the site boundary, and are usually permanent, irreversible or cumulative.<br>Beneficial: Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality. |
| **Minor** | Adverse: Some measurable change in attributes quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. Minor impacts usually are only noticeable within the site and are temporary and reversible.<br>Beneficial: Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring. |
| **Negligible** | Adverse: Very minor loss or detrimental alteration to one or more characteristics, features or elements.<br>Beneficial: Very minor benefit to or positive addition of one or more characteristics, features or elements. |
| **No change** | No loss or alteration of characteristics, features or elements; no observable impact in either direction. |

### 4.2.1 Determining Significance of Effects

The significance of effects is a combination of the environmental value (or sensitivity) of a receptor or resource and the magnitude of the project impact value (change). In other words, it is this product of the impact acting on the receptor that produces an environmental effect. The following matrix provides criterion used for determining the significance of environmental effects through consideration of the potential magnitude of impact and sensitivity of the associated receptor. Definitions of each significance categories are provided.

As is evident from the matrix, in some cases the significance product is a range (i.e., a ‘Minor’ Magnitude and a ‘Very High’ Sensitivity results in a ‘Moderate or Major’ Significance). In these cases, professional judgement will be used to determine which significance the impact represents.

**Table 4-3 Criteria for Determining Significance of Effects**

| | | Magnitude Of Impact (Degree Of Change) | | | | |
|---|---|---|---|---|---|---|
| | | **No change** | **Negligible** | **Minor** | **Moderate** | **Major** |
| **Sensitivity of Receptor** | **Very High** | Neutral | Minor | Moderate or Major | Major | Major |
| | **High** | Neutral | Minor | Minor or moderate | Moderate or Major | Major |
| | **Medium** | Neutral | Negligible or minor | Minor | Moderate | Moderate or Major |
| | **Low** | Neutral | Negligible or minor | Negligible or minor | Minor | Minor or moderate |
| | **Very Low** | Neutral | Negligible | Negligible or minor | Minor | Minor |

**Table 4-4 Definition of Significance of Effects**

| Significance Category | Criteria |
|---|---|
| **Major (Adverse/ Beneficial)** | • The effect is large scale and would cause a large improvement or deterioration in the environment which will likely (but not exclusively) feature nationally or international important sites and features.<br>• Adverse effects may be considered unacceptable due to exceeded of statutory limits and may require additional studies to ascertain if alternatives (in terms design and location) with the potential for lower impacts should be considered. These effects represent key factors in the decision-making process.<br>• These effects are generally, but not exclusively, associated with sites or features of international, national, or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category. |
| **Moderate (Adverse/ Beneficial)** | • The effect gives rise to noticeable improvement or deterioration to the existing environment at a regional or local scale.<br>• If adverse, are potential concerns to the project and may become key factors in the decision-making process.<br>• Whilst the effects will be experienced, mitigation measures and detailed design work may reduce (or enhance) the effect. Some residual effects will still arise. |
| **Minor (Adverse/ Beneficial)** | • The effect is small scale and would cause a small improvement or deterioration to the existing environment.<br>• Adverse effects are undesirable but acceptable and within statutory limits and not likely to be key-decision making issues.<br>• Mitigation measures may not always be required to mitigate such effects.<br>• The cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource. |

| Significance Category | Criteria |
|---|---|
| **Negligible** | • No discernible improvement or deterioration to the existing environment as a result of the Project will occur.<br>• Local issue unlikely to be of importance in the decision-making process.<br>• Effects do not exceed statutory limits.<br>• They are of relevance in enhancing the subsequent design of the project and consideration of mitigation or compensation measures. |
| **Neutral** | • No effect or effect that is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.<br>• No mitigation is required. |

The approach to assigning significance to an effect relies on reasoned argument, professional judgement and cognisance to the advice and views of the appropriate regulators and organisation. For some disciplines, it is determined by comparison, wherever possible with locally, nationally, or internationally accepted standards. If no standards are available then it is necessary to develop Project specific limits, based on guidance or best practice as necessary.

### 4.2.2 Mitigation and Management Measures

A key component of the ESIA process is to explore practical ways of avoiding or reducing potentially significant impacts caused by the development of the Project. These are commonly referred to as mitigation and management measures which have been included in the ESIA report and should be further incorporated in the future construction Health, Safety, Social and Environmental Management System (HSSE-MS) and Operational HSSE-MS that will be prepared by concerned parties. Mitigation are aimed at preventing, minimising, or managing significant adverse impacts to as low as reasonably practicable and enhancing and maximising any potential beneficial impacts of the Project. The following mitigation hierarchy: avoid > minimise > restore > offset is utilised.

The approach taken to identifying and incorporating mitigation measures into the Project is based on a typical hierarchy of decisions and measures. This is aimed at ensuring that wherever possible, potential impacts are mitigated at source rather than mitigated through restoration after the impact has occurred.

### 4.2.3 Residual Impact

The residual impacts section of the ESIA will consider the overall significance of impacts following the implementation of the mitigation and management measures not already included in the design. The significance of such impacts will be re-evaluated based upon the same criteria used to determine the impact significance stated above.

### 4.2.4 Cumulative Impact Assessment

IFC Handbook on Cumulative Impact Assessment defines cumulative impacts as “those that ‘*result from the successive, incremental, and/or combined effects of an action, project, or activity when added to other existing, planned, and/or reasonably anticipated future ones*” (IFC, 2013).

In practice, the assessment of cumulative effects requires consideration of some concepts:

- Assessment of effects over a larger (i.e., "regional") area that may be transboundary/cross-jurisdictional; (including effects due to natural perturbations affecting environmental components and human actions).

- Assessment of effects during a longer period of time into the past and future;
- Assessment of effects on Valued Environmental Components (VEC) due to interactions with other actions, and not just the effects of the single action under review; and
- Evaluation of significance in consideration of other than just local, direct effects.

# 5.0 Stakeholder Engagement

## 5.1 Applicable Requirements and Standards

### 5.1.1 National Standards

#### 5.1.1.1 Public Participation in National EIA

Based on changes in the national legislation regarding the process of National Environmental Impact Assessment conducting public consultation is now a mandatory part of Stage I of the National EIA process.
According to the Resolution of the Cabinet of Ministries of the Republic of Uzbekistan "On further improvement of mechanism for Environmental Impact Assessment" No. 541 dated 07.09.2020 the procedure of conducting public consultations is as follows:

- Annex 3 of the Resolution No 541 – Rules and regulations for conducting public consultations states that public consultations should include discussions and decision making regarding planned activities (for construction of any facility) that may have negative impacts on the environment.
- A non-technical summary regarding any planned project activity that is categorized as I & II group (in accordance with national requirements for categorization) shall be prepared. The Non-technical Summary (NTS) should include information about the following:
    - Brief description of the project;
    - Technology solutions and alternative options for the project;
    - Current state of the environment at the selected project site;
    - A brief assessment of socio-economic conditions;
    - Brief description of the causes and type of negative impacts on the environment as a result of the project;
    - Forecast and assessment of possible changes in the state of the environment and socio-economic conditions;
    - Forecast and assessment of project and non-project risks;
    - Measures to prevent, minimise and/or compensate for adverse impacts; and
    - Assessment of possible significant adverse cross-border impacts.
- A public consultation shall be based on the review of NTS by providing equal rights to all participants to express their concerns, opinion and suggestions.
- The following entities shall be considered as part of public consultations:
    - Representatives of local departments of State Committee on Ecology and Environmental Protection who will be considered as observers of public consultations.
    - Local municipalities (considered as the responsible organisation for organising and inviting participants to the meetings);
    - Non-governmental Organisations (NGOs);
    - All organisations interested in the project;
    - Local communities; and

- Mass media.

- Any costs associated with public consultations will be borne by the Project Developer. In accordance with Law No. 781 “On Procedures for the Withdrawal of Land Plots for Public Needs with Compensation,” meaningful consultations must be undertaken with Project Affected Persons (PAPs) who may experience physical or economic displacement as a result of Project implementation.

#### 5.1.1.2 Management of Public Grievances

The Resolution No. 728 provides for a centralized Grievance Redress Mechanism (GRM) for the resolution of broad-ranging grievances from the public. This system draws on a publicly accessible online platform for the collection of grievances from residents across the country. The Portal allows any member of the public to submit a grievance, for the attention of various authorities within the various domains of local and central Government. The application for grievance resolution can target any authority within the hierarchy of executive Government. Upon initial review of the grievance statement by the target authority, the grievance is allocated to the most relevant LGA for further review and remedial action. In the event that resolution cannot be delivered by the most relevant LGA level, the grievance is cascaded higher along the administrative hierarchy, until an appropriate executive decision is provided by a competent authority.
Furthermore, the Law of the Republic of Uzbekistan № 378 “On Appeals of Individuals and Legal Entities” dated 3.12.2014 (as amended on 17.08.2017), provides a legal basis for communication between individuals and legal entities with state organizations as well as their officials. According to this Law, individuals and legal entities can send their grievances and appeals in any form (verbal, written, or electronic). Submitted appeals should be reviewed within 15 days from the date of receipt. If additional investigation is required, a response should be sent within one month.

### 5.1.2 Lender Requirements

The Project is seeking financing from a group of international development finance institutions (collectively referred to as the Lenders), including the International Finance Corporation (IFC), European Bank for Reconstruction and Development (EBRD), U.S. International Development Finance Corporation (US DFC), Japan Bank for International Cooperation (JBIC), Nippon Export and Investment Insurance (NEXI) and Export-Import Bank of Korea (KEXIM). The stakeholder engagement requirements according to the lenders' criteria are provided in the following sections.

### 5.1.3 International Finance Corporation - Performance Standards

Stakeholder engagement is a fundamental requirement of the IFC Performance Standards (PS), principally under PS1 and supplemented by specific consultation obligations under PS2–PS8. The Project will therefore undertake stakeholder engagement in line with these requirements. IFC Performance Standard 1 on “Social and Environmental Assessment and Management Systems” describes the stakeholder engagement requirements in more depth. It states the following:
*“Stakeholder engagement is the basis for building strong, constructive, and responsive relationships that are essential for the successful management of a project’s environmental and social impacts. Stakeholder engagement is an on-going process that may involve, in varying degrees, the following elements:*

- Stakeholder analysis and planning;
- Disclosure and dissemination of information;
- Consultation and participation;

- Grievance mechanism; and
- On-going reporting to Affected Communities.

*The nature, frequency, and level of effort of stakeholder engagement may vary considerably and will be commensurate with the project's risks and adverse impacts, and the project's phase of development."*

The IFC PS indicate that when Affected Communities are subject to identified risks and adverse impacts from a project, the developer/client will undertake a process of consultation in a manner that provides the Affected Communities with opportunities to express their views on project risks, impacts and mitigation measures, and allows the client to consider and respond to them. Effective consultation is a two-way process that will:

- Begin early in the process of identification of environmental and social risks and impacts and continue on an on-going basis as risks and impacts arise;
- Be based on the prior disclosure and dissemination of relevant, transparent, objective, meaningful and easily accessible information which is in a culturally appropriate local language(s) and format and is understandable to Affected Communities;
- Focus inclusive engagement on those directly affected as opposed to those not directly affected;
- Be free of external manipulation, interference, coercion, or intimidation;
- Enable meaningful participation, where applicable; and
- Be documented.

### 5.1.4 European Bank for Reconstruction and Development

All Projects financed by EBRD shall be undertaken to meet the requirements of the EBRD Environmental and Social Policy (2024) which includes ten (10) Environmental and Social Requirements (ESRs) for key areas of environmental and social sustainability that projects are required to meet, including ESR 10 on Stakeholder Engagement

The EBRD is committed to stakeholder engagement processes which are inclusive and on-going to manage Projects' E&S risks and impacts. The following elements are involved in stakeholder engagement: (i) stakeholder identification and analysis; (ii) stakeholder engagement planning; (iii) disclosure of information; (iv) meaningful consultation;(v) implementation of an effective grievance mechanism, and (vi) ongoing reporting to relevant stakeholders. The process of stakeholder engagement should begin at the earliest stage of project planning and continue throughout the project life.

An essential element in the stakeholder engagement process to ensure meaningful and effective consultation process, is the careful identification and consideration of the characteristics of relevant stakeholders, and the examination of their concerns, expectations, and preferences. ESR10 states "the client will identify those project-affected parties (individuals or groups) who, because of their particular circumstances, may be disadvantages or vulnerable". Engagement with vulnerable groups should be appropriate, planned, and managed with special attention.

Furthermore, the EBRD requires that the project developer establishes and maintain an effective grievance mechanism proportionate to the Project risks and impacts, ensuring that any stakeholder concerns and grievances are received and handled in a timely manner. Project developers are also expected to monitor the effectiveness of engagement processes and the grievance mechanism. A SEP should also include provisions of stakeholder engagement for any changes during the Project lifecycle to ensure the disclosure of mitigations to stakeholders.

In addition, the EBRD has established an Independent Project Accountability Mechanism (IPAM). This mechanism is intended to:

- Help resolve social, environmental, and public disclosure concerns raised by Project-affected people and civil society organisations;
- Facilitate dialogue among Project stakeholders; and
- Assess whether the Bank has complied with its Environmental and Social Policy (ESP) a IPAM exists to address non-compliance with these policies and helps prevent future non-compliance by the Bank.

## 5.2 Stakeholder Identification and Analysis

Project stakeholders were identified systematically during the preparation of the scoping matrix and the ESIA stage, and engagement will continue throughout the project lifecycle. Identified stakeholder are classified into three main categories:

- Affected Stakeholders **(A)** – individuals or groups who may be affected by one or more of the potential impacts[4] of the project, directly[5] or indirectly[6].
- Interest-based Stakeholders **(I)** – Stakeholders concerned with any of the procedures set by the Project, the Project's beneficiaries, national and international non-governmental organizations, and interested parties of civil society, even if they are not located in the impacted area and are not adversely affected.
- Decision Making Stakeholders **(D)** – entities involved in Project development, financing or oversight, this includes the regulator, the National Committee on Ecology and Climate Change (NCECC).
- Vulnerable Groups: Vulnerable groups will be identified through the socio-economic baseline and stakeholder mapping process and may include individuals disproportionately affected due to age, gender, disability, ethnicity, religion, social status, displacement, or economic vulnerability. Unlike general affected stakeholders, they will be engaged through tailored approaches such as household-level consultations, separate focus group discussions (e.g., with women), one-on-one meetings, accessible information formats, and engagement at convenient times and locations to ensure their concerns and inputs are meaningfully heard and considered.

A comprehensive Stakeholder Engagement Matrix has been developed to systematically guide the Project's interactions with all identified stakeholder categories, ensuring that communication is structured, consistent, and responsive to stakeholder needs.

[4] The potential environmental and social impacts of the Project have been identified and assessed in the ESIA. These impacts cover air quality, noise, soil and groundwater, terrestrial ecology, landscape and visual impacts, solid waste and wastewater management, archaeology and cultural heritage, socioeconomics, community health, safety and security, human rights, labour and working conditions, and climate-related considerations.

[5] Directly affected stakeholder and/or groups refers to those who are affected and clearly need on-going attention, taking into consideration other cross-cutting analysis such as vulnerability, project stages, cultural and social context and events, etc.

[6] Indirect affected stakeholders refer to individuals, groups, or communities who may not experience direct impacts from the Project. These stakeholders may include neighbouring communities, businesses, or industries that rely on resources or services indirectly impacted by the Project. Their interests, concerns, and perspectives should still be considered by the Project during the planning and implementation stages.

**Table 5-1 Stakeholder Identification**

| Administrative Order | Stakeholder | Relevance Category and Agenda | Consultation Method |
|---|---|---|---|
| **State organisations /Government Entities** | | | |
| Government Entities (Ministries/Agencies) | National Committee on Ecology and Climate Change (NCECC) | **D:** Entity responsible for issuing the Environmental Permit after reviewing the National EIA. Provision of information on biodiversity, Protected Natural Areas within project site and project-affected areas. In addition, NCECC will review the national EIA stakeholder consultation protocols to ensure compliance. | Official correspondence and Bilateral meetings. |
| | Ministry of Transportation | **D**: Public Partner, responsible for Project implementation and decision making from GoU side. In addition, they will also be involved in the land acquisition processes for the Project. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | Ministry of Water Resources | **D**: Provides information on types of water bodies (river, canals, ponds) and establishes buffer zone as well as requirements to be followed during construction works. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | Ministry of Health | **I**: May have an interest in how the graveyards at the Project site are relocated and the health protocols to be followed. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | Ministry of Labor and Social Security of the Republic of Uzbekistan | **I:** May be interested on how the Project will address issues related to employment, labour & working conditions etc. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | Academy of Sciences – Institute of Archaeology | **D**: Provision of information on tangible and intangible cultural heritage within the project-affected areas. Conducting archaeological surveys for the national inventory of cultural heritage sites and issuing conclusion/technical conditions for construction works, if required for Project . | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | Institute of Botany of the Academy of Sciences of the | **I**: Provision of information on biodiversity and technical support in baseline surveys, if required, for specific floral species and habitats. | Official correspondence, Bilateral meetings, |

| Administrative Order | Stakeholder | Relevance Category and Agenda | Consultation Method |
|---|---|---|---|
| | Republic of Uzbekistan | | Phone/video call consultations. |
| | Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan | **I**: Provision of information on biodiversity and technical support in baseline surveys, if required for specific faunal species and habitats. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | State Committee for Roads | **I**: Provision of information on the existing roads within the project-affected areas. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | Sanitary and Epidemiological Welfare and Public Health Service of The Republic of Uzbekistan | **D**: Establishes size of Health Protection Zone for Project and its facilities based on applicable regulations. Issues conclusion for relocation of graveyards, i.e., from _health and safety prospective. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | Cultural Heritage Agency | **I**: Provision of information on tangible and intangible cultural heritage within the project-affected areas. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| | Civil Aviation Agency under the Ministry of Transport of the Republic of Uzbekistan | **D**: Provides the main requirements to be followed (safety measures, buffer zones, etc) for establishing of new airport and legislation base to be followed. | Official correspondence, Bilateral meetings, Phone/video call consultations. |
| Local Government Agencies | Tashkent Region Khokhimiyat | **D:** Authority responsible for regional planning and administration of development projects. Overarching regional authority to consult with prior to engaging with several other regional and local government entities. The Khokimiyat will issue order on project construction and confirm the land allocation. | Official correspondence and Bilateral meetings, Phone/video call consultations. |
| | Yagiyoul district Khokimiyat | **D:** District level planning and administration of development projects. Can assist in conducting consultations with main departments of the khokimiyat and arrange meetings with local communities. The Khokimiyat will terminate leases of the impacted | Official correspondence Bilateral meetings, Phone/video call consultations. |

| Administrative Order | Stakeholder | Relevance Category and Agenda | Consultation Method |
|---|---|---|---|
| | | leaseholders and take it back to the State Reserve for allocation to the Project.<br>The Municipality will also issue an order on affected graveyards in accordance with decision provided by Sanitary Agency. | |
| | Tashkent Regional Department of the Cadastre Agency | **D:** Authority responsible for maintaining details of land owners of agricultural lands within the project site and nearby areas. The Agency will register the land plots allocated to the Project by the order of the municipality to the Project and change existing cadastral maps accordingly. | Official correspondence<br>Bilateral meetings,<br>Phone/video call consultations. |
| | Tashkent Regional Department of the State Cadastre Chamber of the Cadastre Agency | **D:** For confirmation of land boundaries, property rights and relevant legal documents.<br>Conducting legal examination of land plots and determining who owns them and whether they have property rights;<br>Providing the necessary topographic information, relief and territorial studies for the project, support in the identification of existing structures;<br>In addition, they will register the land taken back to the State Reserve and ensures its further allocation to the Project. | Official correspondence<br>Bilateral meetings,<br>Phone/video call consultations. |
| | Tashkent Regional Main Department of Architecture and Construction | **I:** Providing information on existing buildings, structures, underground and above-ground communication networks, including electricity, gas, water and other infrastructure. | Official correspondence<br>Bilateral meetings,<br>Phone/video call consultations. |
| | Tashkent Regional Department of Agriculture | **I:** Information about agricultural lands;<br>Assessment of the legal status of agricultural land plots, its productivity and economic significance of lands in the project area that are in agricultural use. | Official correspondence<br>Bilateral meetings,<br>Phone/video call consultations. |
| | Chirchiq-Ohangaron Irrigation Systems Basin Administration | **D:** Responsible for the execution of laws and regulations pertaining to operation and maintenance of irrigation water infrastructure.<br>Provision of information on existing irrigational water supply facilities within the Project site and | Official correspondence<br>Bilateral meetings,<br>Phone/video call consultations. |

| Administrative Order | Stakeholder | Relevance Category and Agenda | Consultation Method |
|---|---|---|---|
| | | establishing buffer zones to be followed. | |
| | Tashkent Regional Main Department of Tourism and Cultural Heritage | **D:** Provision of information on presence/absence of objects of cultural heritage on the project site.<br>Permission on relocation will be needed if impacted graveyards are registered as cultural object of national importance. | Official correspondence Bilateral meetings,<br>Phone/video call consultations. |
| | Tashkent Territorial Electric Networks JSC | **I:** The entity responsible for the execution of laws and regulations pertaining to operation and maintenance of electric infrastructure.<br>Provision of information on existing electricity supply facilities within and close to the project site. | Official correspondence and bilateral meetings, if necessary. |
| | Hududgaz Tashkent Gas Supply Branch | **I:** The entity responsible for the execution of laws and regulations pertaining to operation and maintenance of gas supply infrastructure.<br>Provision of information on existing gas supply facilities within and close to the project site. If pipes exist near Project site, then buffer zones and technical conditions for construction are provided. | Official correspondence and bilateral meetings if necessary. |
| | Tashkent Regional Road Construction Department | **I:** Entity responsible for the execution of laws and regulations pertaining to operation and maintenance of roads and related infrastructure<br>For the provision of information on existing road infrastructure within and close to the project site. | Official correspondence and bilateral meetings if necessary. |
| | Head of Tashkent Regional Health Department | **I:** Entity responsible for the execution of laws and regulations pertaining to public health and safety. | Official correspondence bilateral meetings if necessary. |
| | Center for State Sanitary and Epidemiological Surveillance of Tashkent Region (SES) | **D:** Entity responsible for the execution of laws and regulations pertaining to public health and safety.<br>Entity responsible for the establishment of sanitary and health and safety buffer zones.<br>Department of Tashkent region will be supporting the Republican department in collecting relevant materials and providing recommendation for issuing | Official correspondence and bilateral meetings if necessary. |

| Administrative Order | Stakeholder | Relevance Category and Agenda | Consultation Method |
|---|---|---|---|
| | | conclusion on whether the impacted graveyards can be relocated including the required health and safety protocols. | |
| | Tashkent Regional Department of the Mahalla Association of Uzbekistan | **I:** Establishes open communication with the population.<br><br>Informing residents of settlements affected by the project activities about construction work, assisting in studying their proposals and any concerns.<br><br>Communication with the population and provision of information. | Official correspondence and bilateral meetings and phone/video calls. |
| | Regional Council for the Coordination Self-government Bodies' Activities | | Official correspondence and bilateral meetings if necessary. |
| | Nuroni" Foundation's Tashkent Regional Branch | | Official correspondence and bilateral meetings if necessary. |
| | Tashkent Regional Department of the Committee for Religious Affairs | **D:** Provides decision on impacted graveyards located within Project site, i.e., if they can be relocated or not**.** | Official correspondence and bilateral meetings if necessary. |
| | Tashkent Regional Representation of the Spiritual Administration of Muslims of Uzbekistan | **I:** Subordinate organisation to Committee for Religious affairs and supports relocation of graveyards if required, | Official correspondence and bilateral meetings if necessary. |
| | Tashkent Regional Council of Farmers, Dehkan Farms, and Household Landowners (tomorkas) | **I:** To facilitate communication with Farmers, Dehkans and Household Landowners. | Official correspondence and bilateral meetings if necessary. |
| **Non-Governmental Organizations** | | | |
| NGOs | Ecology movement (O'zbekiston ekologik harakati) | **I:** Increasing the civic activity of the population in solving environmental issues. | Official correspondence and bilateral meetings if necessary. |
| | Ecosan (Ekosan) | **I:** Implementation of programs and projects aimed at improving the | |

| Administrative Order | Stakeholder | Relevance Category and Agenda | Consultation Method |
|---|---|---|---|
| | | environmental condition of Uzbekistan. | |
| | Istiqbolli avlod | **I:** Activities aimed at eradicating all forms of violence, conflicts in the society, prevention of HIV, AIDS protection of child rights and preventing human trafficking in society. | |
| | Yuksak salohiyat | **I:** Promoting the development and support of citizens' initiatives in the use of rights and freedoms in the forming/shaping the strong civil society. | |
| | Center for social and legal support for women and their families “Qalb mehri” | **I:** Promotes equal rights between men and women, provides support to victims of gender based violence. | |
| | Human Rights and Cultural Heritage and Community based NGOs | **I:** Organizations that focus on cultural preservation or community rights may need to be consulted, especially if there are concerns over human rights or cultural impacts.<br>Similarly local community groups can facilitate dialogue and ensure the views of affected populations are adequately represented. | Bilateral meetings<br>Phone/video calls |
| **Project Affected Stakeholders** | | | |
| Project Affected Land Owners and Land Users | Leaseholders and land users, workers etc within the Project Area of Influence | **A**: Households and vulnerable PAPs who may experience economic and physical displacement as a result of the Project. | Public disclosure meetings and face to face consultations with individual farm owners and socioeconomic surveys. |
| | Owners of residential buildings & assets | **A**: Household that will experience physical displacement as a result of the Project. | Consultations, Socio-economic and inventory surveys,<br>Public disclosure meetings. |
| | Commercial entities & their workers | **A**: Commercial entities operators & workers who may experience physical and economic displacement due to the Project. | Face to face interviews, consultations, inventory surveys Public disclosure meetings. |

| Administrative Order | Stakeholder | Relevance Category and Agenda | Consultation Method |
|---|---|---|---|
| Local service operators | Operators of existing infrastructure & utilities (cables, gas & water pipes, OTLs) | **A:** Relocation of structures might be required due to the construction of Project. | Consultations, business correspondence, site observation and inventory surveys, if required. |
| Directly affected communities | People living in nearby communities such as Yangitosh | **A**: Receptors at nearby communities that may potentially be impacted from the construction and operation related impacts such as noise, air emissions, traffic, community health & safety etc. | FGD/socio-economic surveys of households, KII with community leaders.<br>Public disclosure meetings. |
| **Stakeholders Managing the Affected Graveyards** | | | |
| Project affected communities | Next to Kin of the deceased | **A** : Families of the deceased must be consulted and involved in decision-making regarding the relocation process, including the new burial site. | Face to face discussion to understand concern and preferred option if to relocate or leave the grave as it is. |
| Workers | Cemetery workers | **A:** Cemetery workers may be subject livelihood impacts if the cemetery is relocated to a new location. | Face to face consultation and phone conversation as required. |
| Religious Leaders | Priests, Imams etc. | **D:** Religious leaders will be leading the process of communication with deceased s' family members. They will be executing relevant ceremonies and rituals if grave is relocated from one place to another in consultations with relevant government authorities & next of kin. | Face to face consultation or phone conversation to discuss any religious or cultural requirements are to be followed. |
| **Project Financing** | | | |
| Financial Lenders | IFC, EBRD, US DFC, JBIC, NEXI and KEXIM. | **D:** Will approve the Project ESIA documents including this SEP and provide financing for the Project. | Ongoing dialogue as part of their E&S due diligence for the project |

### 5.2.1 ESIA Phase Stakeholder Engagement

The Project involves significant land acquisition for the Project footprint and has potential socio-economic implications for communities within a 5 km Area of Influence (AoI). In alignment with international standards, the ESIA team has conducted extensive stakeholder engagement activities to ensure meaningful participation and transparency. Community consultations and FGDs were held with stakeholders from the following makhallas: Aranshi, Beruniy, Dustlik, Kim Pen Xva, Koshek, Sarum, Sergeli, Taraqqiyot, Xalqobod, Yangiyol and Yungichokli. Engagement activities targeted a wide range of stakeholders, including physically and economically displaced households, vulnerable groups, municipal and district authorities, government agencies, farmer associations, local service providers, and civil society organizations. These activities aimed to gather insights on community concerns, identify potential impacts on livelihoods, and inform the design of mitigation and management measures for both the construction and operation phases.
Consultations were carried out using a combination of focus group discussions (FGDs), public meetings, Socio-Economic survey, door-to-door visits, and online sessions. The objectives of these engagements were to:

- Communicate key project information and the planned ESIA activities.
- Collect feedback on potential environmental, social, and economic impacts, particularly relating to land acquisition, livelihoods, infrastructure access, and community services.
- Identify stakeholder priorities and concerns, including equitable access to project benefits, protection of vulnerable groups, and continuity of agricultural production.
- Explain the Project grievance redress mechanism, ensuring stakeholders had accessible channels to raise concerns or seek support.
- Enhance trust, transparency, and collaborative problem-solving between the Project and affected communities.

### 5.2.2 Stakeholder Engagement During the National EIA Process

Stakeholder engagement was also undertaken as part of the national Environmental Impact Assessment (EIA) process in February 2026, prior to and separately from the stakeholder engagement undertaken for the Project's international lender Environmental and Social Impact Assessment (ESIA) and Stakeholder Engagement Plan (SEP).

The national EIA process included engagement with relevant local stakeholders and government representatives in accordance with applicable national requirements. The purpose of this engagement was to provide information on the proposed project, present the anticipated environmental and social implications of the Project, and provide an opportunity for stakeholders and potentially affected communities to raise questions, concerns, and recommendations regarding the proposed development.

The engagement undertaken during the national EIA process provided an early opportunity for stakeholders to be informed about the Project and complemented the subsequent engagement undertaken as part of the international lender ESIA process. Issues and concerns raised during the national EIA engagement were considered, where relevant and available, in the subsequent assessment of environmental and social impacts and in the development of mitigation and management measures.

The national EIA consultation process is distinguished from the subsequent lender-aligned stakeholder engagement undertaken for the Project. The latter was designed to meet the requirements of the applicable international standards and lender requirements, including the principles of meaningful, inclusive, accessible, and ongoing stakeholder engagement. Accordingly, the February 2026 national EIA engagement does not replace the stakeholder

identification, disclosure, consultation, and ongoing engagement activities required under the Project SEP.

The following summary table presents key indicators from these consultations, providing a high-level overview of the engagement outcomes and the Project's responses to stakeholder feedback.

**Table 5-2 Stakeholder Consultation Overview**

| Items | Name of the Stakeholders |
|---|---|
| Stakeholder Groups Engaged | • Project Affected Households<br>• Community Members within the Project Area of Influence (5 km)<br>• Uzsuvta'minot (Tashkent Regional Water Supply)<br>• Tashkent Regional Department of Preschool and School Education<br>• Hududgaz Tashkent<br>• Tashkent Regional Health Department<br>• Water Supply Department, Urtachirchik District<br>• Melioration (Land Reclamation/Drainage) Department, Urtachirchik District<br>• Urtachirchik District Khokim's Office – Agriculture<br>• Urtachirchik District Khokim's Office – Construction<br>• Sanitary and Epidemiological Service (SES), Urtachirchik District<br>• Deputy Chief Doctor, Urtachirchik District<br>• Melioration Expedition Department, Urtachirchik District<br>• UzAirports Project Office<br>• Halqobod Mahalla Committee<br>• Makhalla Citizens' Assemblies:<br>  • Aranshi<br>  • Beruniy<br>  • Dustlik<br>  • Kim Pen Xva<br>  • Koshek<br>  • Sarum<br>  • Sergeli<br>  • Taraqqiyot<br>  • Xalqobod<br>  • Yangiyol<br>  • Yungichokli<br>• Department of Tourism, Urtachirchik District<br>• Department of Ecology, Environmental Protection and Climate Change, Urtachirchik District<br>• Tashkent Regional Highways Department<br>• Tashkent Regional Department of Cultural Heritage<br>• Department of Ecology, Environmental Protection and Climate Change, Kuyi Chirchik District<br>• Kuyi Chirchik District Road Department<br>• Khokim's Office, Kuyi Chirchik District<br>• Central Chirchik District SES Department<br>• Makhalla Chairmen and Other Community Representatives (including school directors, teachers, women leaders, and local Khokimiyat representatives) |

| Items | Name of the Stakeholders |
|---|---|
| | • Women-headed and single-parent households, low-income and economically vulnerable households, elderly persons, persons with disabilities, households with members requiring regular medical care, children and youth; households dependent on agriculture, livestock and other land-based livelihoods, persons with limited literacy, access to information, or digital connectivity; socially or economically marginalised households and other vulnerable persons identified through the socio-economic baseline and Project implementation |

***Note:*** *Detailed information on stakeholder engagement, including full consultation records, feedback, and project responses, is provided in the Stakeholder Engagement Plan (SEP) prepared for the Project. This summary table is intended to provide a high-level overview for reference purposes.*

### 5.2.3 Consultation Methods & Frequency

Between December 2025 and January 2026, the Project conducted FGDs, public meetings, door-to-door visits, online consultations, and a socio-economic survey to support the RAP and ESIA studies. Communities within the 5 km Area of Influence (AoI) were engaged across eleven makhallas—Aranshi, Yongichkoli, Kim Pen Khva, Dustlik, Tarakkiyot, Khalkobod, Yangiyul, Surum, Kushek, Sergeli, and Beruniy—selected for their proximity to the Project and socio-economic relevance.

Engagement included FGDs and a household survey to capture community perspectives on livelihoods, household composition, social structures, and local priorities, with emphasis on gender and vulnerable groups. Multiple FGDs were held in eight makhallas (Surum, Yangiyul, Khalkobod, Tarakkiyot, Kushek, Beruniy, Sergeli, and Dustlik), featuring mixed-gender groups with ≥30% women, women-only groups, and sessions with vulnerable participants such as the elderly and low-income households. A total of 272 households were randomly selected from 8,105 households, with discussion guides and survey questionnaires covering livelihoods, income sources, access to services, and other socio-economic indicators.

**Table 5-3 Key feedback and Concerns**

| Key Feedback & Concerns | Project Responses & Commitments |
|---|---|
| • Existing collector-drainage network and design solutions for its relocation.<br>• Financing and responsibility for relocating infrastructure outside the project territory.<br>• Ornithological conditions on the project site and possible mitigation or improvement measures.<br>• Impacts of collector-drainage network relocation on nearby residents.<br>• Status and relocation of graveyards/burial sites, including national and religious affiliations.<br>• Compliance with legislative and sanitary-epidemiological norms for cemetery relocation.<br>• Conducting explanatory discussions with local communities regarding cemetery relocation.<br>• Job creation, local employment prioritization, and potential training opportunities.<br>• Opportunities for local businesses to provide catering and support services.<br>• Infrastructure improvements, including roads, utilities, and transport connectivity. | • Conduct ESIA to assess environmental, social, and cultural impacts.<br>• Relocate collector-drainage networks and infrastructure with minimal disruption.<br>• Ensure cemetery relocation follows legislation and involves community consultation.<br>• Monitor and mitigate ecological impacts, including ornithology and groundwater.<br>• Prioritize local employment and provide training where feasible.<br>• Support local businesses through transparent procurement for services and catering.<br>• Plan roads and transport connections in coordination with authorities.<br>• Mitigate noise, vibration, and air quality impacts from airport operations.<br>• Protect cultural heritage sites within the project area and 5 km radius. |

| Key Feedback & Concerns | Project Responses & Commitments |
|---|---|
| • Impacts of new and existing roads on traffic, noise, and public access.<br>• Noise, vibration, and air quality impacts from airport operations.<br>• Groundwater (seepage water) impacts and mitigation.<br>• Presence and protection of cultural heritage sites within the project area and 5 km radius.<br>• Project transparency, grievance mechanisms, and information sharing with communities.<br>• Positive economic effects, including tourism, trade, investment, and skills development. | • Maintain stakeholder engagement and grievance mechanisms throughout the project. |

ESIA public disclosure meetings will be held between late September and early October 2026, providing an opportunity for stakeholders to review the ESIA findings and proposed mitigation and management measures and provide further feedback. The ESIA will be publicly disclosed for 60 days to allow for stakeholder review and comment. The results of the meetings and any written feedback received during the disclosure period will be documented, reviewed and incorporated, as appropriate, into the final ESIA package, which will remain publicly available for the Project lifetime.

### 5.2.4 Stakeholder Engagement During Construction and Commissioning

The planned construction and commissioning-related engagement processes are outlined below.

**Table 5-4 Construction Phase SEP Timetable**

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| **Notification of construction and commissioning activities (including timelines)** | Directly Affected Stakeholders: Leaseholders and land users within the Project Area of Influence; owners of residential buildings and assets; commercial entities and their workers; people living in nearby communities (e.g. Yangitosh); operators of existing infrastructure and utilities. | Official notices at site boundaries and access roads; community notice boards; distribution of leaflets; disclosure through mahalla committees; bilateral meetings with affected parties; phone calls where required. | Prior to commencement of construction and commissioning, stakeholder engagement activities will be initiated and implemented, with updates incorporated as required throughout the construction phase to reflect any changes in project activities. In addition, further meetings will be convened in the event of significant changes to the project scope, schedule, or potential impacts, ensuring that stakeholders remain informed and have the opportunity to provide input on any developments. | Project Company |
| | Indirectly Affected Stakeholders: Wider communities in Tashkent Region, NGOs and interested parties | Disclosure through local authorities, Mahalla Association, public notices, and information materials. | Meetings will be undertaken throughout the construction phase of the project and will also be convened in the event of any significant changes to construction activities or processes. These engagements will serve as a continuous platform for communication with relevant stakeholders, ensuring that they are kept informed of project progress, upcoming activities, and any potential impacts. In addition, the meetings will provide an opportunity to address stakeholder concerns, incorporate feedback where appropriate, and maintain transparency and trust throughout the construction period. | |

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| **Engagement on land acquisition, livelihood restoration and resettlement** | Leaseholders, land users, affected households, farmers (including Council of Farmers, Dehkan Farms and Household Landowners) | Household-level consultations will be conducted to engage directly with affected families, ensuring that their concerns, preferences, and socio-economic conditions are clearly understood and documented. In addition, focus group discussions will be organized with specific stakeholder groups to facilitate more inclusive and participatory dialogue, enabling the collection of diverse perspectives, particularly from vulnerable or marginalized populations. The Project will also ensure the transparent disclosure of compensation and livelihood restoration plans, providing stakeholders with clear, accessible, and timely information regarding entitlements, processes, and implementation timelines. Furthermore, one-to-one meetings will be carried out with key affected individuals and stakeholders who may require tailored engagement or have specific concerns that cannot be adequately addressed through broader consultation formats. | Engagement activities will be undertaken continuously throughout both the pre-construction and construction phases of the project, ensuring consistent communication and stakeholder involvement. These efforts will be further intensified in advance of any displacement or land access requirements, with a focus on providing timely information, addressing concerns, and facilitating meaningful consultation with affected stakeholders | Project Company |
| **Communication of project employment opportunities** | The stakeholder group includes local communities, affected persons, local authorities, and vocational institutions. Local communities represent the broader population residing within and around the project's | Engagement with stakeholders during the construction phase will be carried out through multiple, structured channels to ensure broad accessibility and transparency. Information will be shared through public notices placed in accessible locations, ena- | During pre-construction and throughout recruitment phases | Project Company and EPC Contractor |

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| | area of influence, whose daily lives, access to services, and socio-economic conditions may be directly or indirectly impacted. Affected persons specifically refer to individuals or households that may experience tangible impacts from the project, such as land use changes, livelihood disruptions, or environmental and social effects | bling timely awareness of project activities and opportunities. Coordination with local employment offices will support the dissemination of job-related information and facilitate access to employment opportunities for the local workforce. Regular meetings will be organized with relevant stakeholders to provide updates, gather feedback, and address concerns in a participatory manner. In addition, information will be disseminated through mahalla committees, which serve as key community-level institutions, ensuring that communication reaches households effectively and reflects local dynamics | | |
| **Implementation of Grievance Redress Mechanism (GRM)** | All stakeholders including Project Affected Households, affected communities, workers, NGOs, local authorities, and vulnerable groups | The Project will establish and operate a multi-channel Grievance Redress Mechanism (GRM) in line with IFC requirements to ensure accessibility, transparency, and responsiveness for all stakeholders. Grievances may be submitted through several channels, including a dedicated hotline, email, grievance boxes placed at accessible locations, community meetings, and direct in-person submissions to project representatives. This approach is designed to accommodate diverse stakeholder preferences and literacy levels, ensuring that all affected and interested parties have a clear and convenient means to raise concerns, provide feedback, or seek | Established prior to construction and maintained continuously throughout construction and commissioning | Project Company and EPC Contractor |

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| | | information. All grievances received through these channels will be systematically recorded, assessed, and addressed within defined timeframes, with feedback provided to the complainant in a timely and culturally appropriate manner. | | |
| **Environmental and social impact management communication (e.g. noise, dust, traffic, health and safety)** | Nearby communities, commercial entities, vulnerable groups, and Mahalla representatives have been identified as key stakeholders. These groups are considered directly or indirectly affected by the Project and/or capable of influencing its outcomes. | Stakeholder engagement will be undertaken through a combination of community meetings and focus group discussions to ensure inclusive and meaningful participation of affected and interested parties. These activities will be supported by the disclosure of mitigation measures in a clear and accessible manner, along with the distribution of appropriate information materials to facilitate understanding of project impacts, risks, and proposed management strategies. | Prior to high-impact activities and periodically throughout construction | EPC Contractor/Project Company |
| **Traffic and access management communication** | The key stakeholders include road users, nearby communities, commercial entities, the State Committee for Roads, and the Tashkent Regional Road Construction Department. | The project will implement a structured approach to traffic and community safety management through the provision of traffic signage, dissemination of public notices, regular coordination meetings with relevant authorities and stakeholders, and timely disclosure of traffic management plans to affected communities. These measures are intended to ensure transparency, facilitate stakeholder awareness, and minimize risks and disruptions associated with | Prior to and throughout construction, particularly during peak activity periods. | EPC Contractor/Project Company |

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| | | project-related traffic during construction phases. | | |
| **Coordination with utilities and infrastructure providers** | Tashkent Territorial Electric Networks JSC, Hududgaz Tashkent Gas Supply Branch, and the operators of water, gas, electricity, and telecommunications infrastructure are key utility stakeholders for the Project, responsible for the provision, management, and coordination of essential services within the project area. | Engagement during construction and commissioning will be undertaken through structured technical coordination meetings, formal written correspondence, and joint site inspections. These mechanisms will facilitate timely information sharing, ensure alignment on project progress and compliance requirements, and enable the identification and resolution of issues in a transparent and coordinated manner among relevant stakeholders. | As required throughout construction phase | Project Company |
| **Environmental and social performance reporting and regulatory engagement** | National Committee on Ecology and Climate Change, Civil Aviation Agency, Ministry of Transport, relevant regional authorities and lenders. | The engagement process will include formal reporting mechanisms supported by the regular submission of monitoring reports that document progress, performance, and compliance with agreed requirements. This will be complemented by periodic meetings held with relevant stakeholders to review implementation status, discuss emerging issues, and agree on necessary corrective actions. | As per regulatory and lender requirements (periodic) | Project Company |
| **Engagement on cultural heritage and chance finds** | Cultural Heritage Agency, Academy of Sciences-Institute of Archaeology, affected communities, religious leaders (if applicable) | Immediate notification should be carried out as soon as any relevant issue is identified, ensuring timely communication with the appropriate authorities and stakeholders. This should be followed by formal correspondence to document the matter and maintain a | Immediately upon identification of any potential cultural heritage findings | Project Company |

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| | | clear record of actions taken. Site-specific consultations should be undertaken to engage with local stakeholders and address any concerns in a structured manner. In parallel, chance find procedures should be implemented, including stopping work where necessary, documenting the find, and coordinating with relevant authorities for appropriate management. | | |
| **Engagement with NGOs and vulnerable groups** | Environmental NGOs, social and community-based NGOs and vulnerable groups (including women and elderly via relevant organizations) | The engagement approach includes targeted meetings with key stakeholders to capture specific concerns and perspectives, supported by clear and timely information disclosure. Consultations will be carried out to enable meaningful two-way dialogue, while ensuring the inclusion of diverse stakeholder groups, particularly vulnerable and underrepresented communities, in stakeholder discussions throughout the project lifecycle. | Periodically throughout construction phase | Project Company |
| **Worker engagement and occupational health and safety communication** | Project workers, including contractors and subcontractors, are directly involved in project implementation, particularly during construction and are responsible for executing on-site activities in line with project requirements. | Induction training, toolbox talks, worker meetings, and occupational health and safety (OHS) briefings will be conducted regularly to ensure workers are informed of site requirements, potential hazards, and safety procedures, while also promoting communication, compliance, and a safe working environment. | At the start of employment and continuously throughout construction | EPC Contractor |

### 5.2.5 Stakeholder Engagement During Operation

The planned operational phase stakeholder engagement activities are outlined in the table below.

**Table 5-5 Operational Phase SEP Timetable**

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| Ongoing disclosure of environmental and social performance | The National Committee on Ecology and Climate Change, the Civil Aviation Agency, the Ministry of Transport, lenders, and relevant regional authorities. | Periodic environmental and social monitoring reports will be prepared and formally submitted to relevant authorities and lenders to demonstrate compliance. These will be complemented by audits, as well as regular meetings and site inspections, to review performance and address any issues promptly. | As per regulatory and lender requirements (typically quarterly/annual) | Project Company/Airport Operator |
| Operational phase Grievance Redress Mechanism (GRM) | All stakeholders including nearby communities (including Project Affected Households and any resettled households, where relevant), passengers, workers, NGOs, and local authorities. | The Grievance Redress Mechanism (GRM) will operate through multiple accessible channels, including a hotline, email, website, grievance boxes, and in-person submissions. All grievances will be recorded, tracked, and regularly reported to ensure timely and transparent resolution. | Continuous throughout operations | Airport Operator |
| Community engagement on operational impacts (e.g. noise, air emissions, traffic, safety) | People living in nearby communities (e.g. Yangitosh), including Project Affected Households and resettled households where residual impacts persist; commercial entities; Mahalla representatives | Community engagement during the project will include a range of structured and ongoing activities designed to ensure transparent communication and meaningful participation. These will comprise community meetings to share updates, gather feedback, and address concerns from the wider public, as well as focus group discussions with specific stakeholder groups to better understand their perspectives and priorities. | Periodically (e.g. bi-annually) and in response to significant changes or complaints | Airport Operator |

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| Noise and environmental monitoring disclosure | Nearby communities along with the National Committee on Ecology and Climate Change and relevant non-governmental organizations (NGOs), will be engaged as part of the stakeholder group. | Public disclosure of monitoring data, reports, and community briefings will be carried out to ensure transparency, keep stakeholders informed, and communicate key project updates and performance. | Periodically in line with monitoring programs and regulatory requirements | Airport Operator |
| Post-resettlement and livelihood restoration monitoring (if applicable) | Project affected households, business enterprises, Dehkan Farms, and household landowners. | Household-level follow-ups will be conducted to maintain direct engagement and address any concerns. Surveys will be carried out to gather stakeholder feedback and assess project impacts, while targeted consultations will ensure focused engagement with specific and vulnerable groups. The outcomes of these activities will be documented in monitoring reports to track progress and inform ongoing project management. | Periodically until livelihood restoration objectives are demonstrably achieved | Project Company |
| Stakeholder engagement with aviation and operational authorities | Uzbekistan Airports JSC, Civil Aviation Agency, and the Ministry of Transport. | Technical meetings, operational coordination meetings, and formal reporting and approvals will guide project implementation by ensuring alignment on technical aspects, supporting day-to-day coordination among stakeholders, and maintaining compliance through structured documentation and decision-making processes. | Continuous and as required for operational coordination | Airport Operator |
| Coordination with local government and administrative bodies | Tashkent Region Khokimiyat, Yagiyoul District Khokimiyat, Mahalla Association, and regional coordination bodies. | Coordination meetings, official correspondence, and joint planning sessions will be undertaken to ensure effective communication, alignment of objectives, and smooth implementation of activities among all stakeholders involved. | Periodically (e.g. quarterly) and as required | Airport Operator |

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| Engagement on public health and safety | Sanitary and Epidemiological Welfare and Public Health Service, Center for State Sanitary and Epidemiological Surveillance (SES), Ministry of Health, and Regional Health Department. | Reporting, inspections, meetings, and compliance audits will be carried out to ensure effective monitoring, coordination, and adherence to regulatory and project requirements. | As per regulatory requirements and periodic inspections | Airport Operator |
| Employment and workforce engagement | Airport workers, contractors, and the Ministry of Labor and Social Security are key stakeholders involved in the project, each playing an important role in ensuring compliance with labor standards, workforce management, and regulatory oversight. | Worker meetings, trainings, internal communication platforms, and compliance reporting are key tools for workforce engagement and management. It will support regular communication, capacity building, timely information sharing, and monitoring of compliance with project and regulatory requirements. | Continuous throughout operations | Airport Operator |
| Engagement with utilities and infrastructure providers | Tashkent Territorial Electric Networks JSC, Hududgaz Tashkent Gas Supply Branch, and other infrastructure operators. | The process will involve coordination meetings, technical discussions, and formal communication channels to ensure effective information exchange, alignment on technical matters, and proper documentation throughout the engagement. | As required during operations and maintenance | Airport Operator |
| Engagement with NGOs and vulnerable groups | Environmental NGOs, social NGOs, and vulnerable groups including women, elderly, and low-income households. | The engagement approach will include targeted consultations with relevant stakeholders, proactive disclosure of information to ensure transparency, and the inclusion of stakeholders in all engagement activities to support meaningful participation and feedback throughout the process. | Periodically and as required | Airport Operator |
| Cultural heritage management | Cultural Heritage Agency, Institute of Archaeology, religious leaders, and affected communities. | The process will include reporting on relevant activities and outcomes, conducting consultations with key stakeholders to gather feedback and ensure transparency, and implementing appropriate management | As required | Airport Operator |

| Activity | Stakeholders | Engagement Method | Timing and Frequency | Responsible Parties for Implementation |
|---|---|---|---|---|
| | | measures to address identified issues and ensure effective project execution. | | |
| Passenger and user engagement | Airport users (passengers, visitors, airlines, service providers) | Customer feedback systems, surveys, helpdesks, and digital platforms will be used to collect and manage stakeholder feedback, enabling timely response and continuous service improvement. | Continuous throughout operations | Airport Operator |
| Emergency preparedness and communication | Nearby communities, local authorities, airport users, and workers. | Awareness materials, coordination meetings, and drills will be implemented to support stakeholder engagement and preparedness. Awareness materials will provide key information, coordination meetings will ensure alignment among stakeholders, and drills will help test and strengthen response readiness. | Periodically and as required under operational procedures | Airport Operator |
| Periodic review and update of SEP | All stakeholder groups | The process includes an internal review of the relevant documents, followed by the incorporation and consideration of stakeholder feedback. Where necessary, updates are then disclosed to ensure transparency and to reflect any revisions arising from the review and consultation process. | Periodically (ex- In every 2–3 years or upon significant changes) | Airport Operator |

While a detailed Construction Phase Stakeholder Engagement Plan (SEP) will be developed and disclosed prior to the commencement of construction activities, this ESIA provides the overarching framework for stakeholder engagement throughout the Project lifecycle. The framework establishes the principles, objectives, and procedures for meaningful and inclusive engagement, including stakeholder identification and analysis, information disclosure, consultation and participation mechanisms, grievance management, monitoring, and reporting. Stakeholder engagement activities will be tailored to the specific risks, impacts, and stakeholder interests associated with each phase of the Project, including design, construction, operation, and eventual decommissioning. The SEP will be periodically updated to reflect changes in Project activities, stakeholder expectations, and emerging issues, ensuring continued alignment with applicable national requirements and lender standards, including those of the Development Finance Corporation (DFC) and other applicable international good practice requirements.

### 5.2.6 Grievance Redress Mechanism (GRM)

The Grievance Redress Mechanism (GRM) is a key component of stakeholder engagement and will remain operational throughout the Project's implementation. It will follow a clear, transparent, and culturally appropriate process that is easily accessible and free of charge, ensuring that all stakeholders and affected parties have the opportunity to raise concerns. Stakeholders can be assured that their complaints will be carefully heard, documented, and promptly addressed.

The Project will implement a Grievance Redress Mechanism (GRM) to receive, record, assess, and address concerns, complaints, and grievances raised by affected stakeholders throughout the Project lifecycle aligned with the Project's environmental and social management system and will comply with the requirements of applicable national legislation and international lender standards, including IFC Performance Standard 1 and other relevant good international industry practice.

### 5.2.7 Key Principles of Grievance Mechanism

The grievance mechanism for the Project will comply with the following principles:

- The purpose of the grievance mechanism procedure will be clarified at the outset.
- The process will be scaled to the risks and impacts of the Project.
- The process will be transparent and accountable to all stakeholders by putting it into writing, publicising it and explaining it to relevant stakeholders.
- The grievance mechanism will be made clear, understandable and easily accessible by providing information in the local language and orally where communities cannot read.
- Complaints or concerns will be rapidly resolved.
- The mechanism will not involve any costs nor retribution associated with lodging a grievance; and
- Precautionary measures such as clear non-retaliation policy, confidentiality measures and safeguarding of personal data collected in relation to a complaint, as well as an option to submit grievances anonymously will be in place.

### 5.2.8 Scope of Grievance Mechanism

The scope of the grievance mechanism is to evaluate and address stakeholders' complaints and concerns regarding project activities and environmental and social performance during the Project's lifecycle.

All relevant grievances from affected stakeholders will be accepted and no judgment made prior to investigation, even if complaints are minor. However, according to good practice, the following grievances will be directed outside of Project-level mechanisms:

- Complaints clearly not related to the project based on assessment of its legitimacy.
- Issues related to governmental policy and government institutions.
- Complaints constituting criminal activity and violence, which will be referred to the justice system; and
- Commercial disputes: Commercial matters will be stipulated in contractual agreements and issues will be resolved through a variety of commercial resolution mechanisms or civil courts.

If grievance is rejected during screening stage, the grievant will be informed of the decision and provided with clear justification for the rejection.

### 5.2.9 Steps in Grievance Mechanism Management

#### 5.2.9.1 Publicising Grievance Management Procedures

The grievance mechanism will be publicised to stakeholders, including the following information:

- What Project-level mechanisms exist and what they can deliver, and what remedies grievant can receive from using the company's grievance mechanism, as opposed to other resolution mechanisms;
- Who can raise complaints (i.e., all stakeholders);
- Where, when, and how community members can raise complaints;
- Who is responsible for receiving and responding to complaints;
- What sort of response grievant can expect from the company, including timing of response; and
- What other rights and protection are guaranteed.

#### 5.2.9.2 Means of GRM Disclosure

The Project's Grievance Redress Mechanism (GRM) and associated grievance procedures will be widely disclosed to ensure that all stakeholders are aware of their right to raise concerns and the available channels for doing so. Information on the GRM will be provided through multiple disclosure methods to maximise accessibility and transparency.

A Project Grievance Information Leaflet, describing the purpose of the GRM, the grievance submission process, available communication channels, expected response timelines, and appeal procedures, will be prepared in Uzbek, Russian, and English. The leaflet will be distributed during stakeholder engagement activities and will be made available at the Project site office, the construction camp (for workers), relevant mahalla committee offices, and other publicly accessible locations within the Project Area of Influence.

In addition, GRM information and stakeholder engagement materials, including the Stakeholder Engagement Plan (SEP), non-technical project information, and key Project updates, will be disclosed electronically through the Project website (or the Project Company's corporate website once established). Hard copies of key disclosure documents will be maintained at the Project site office and other designated public locations for review by interested stakeholders.

Project notice boards and information kiosks (where established) at the Project site entrance and other appropriate community locations will be used to display notices regarding Project activities, consultation events, grievance contact details, and other relevant announcements. During construction, contractors will ensure that GRM contact information, including telephone numbers, email addresses, postal addresses, and designated community liaison contact details, is prominently displayed at site entrances and worker accommodation facilities.

The Project Company will periodically review the effectiveness of these disclosure mechanisms through stakeholder feedback and will update the disclosure approach, as necessary, to ensure that Project information remains accessible, timely, culturally appropriate, and consistent with the requirements of IFC Performance Standard 1

## 5.3 Grievance Mechanism during Construction and Commissioning

The Project Company will ensure that the GRM is accessible, transparent, and culturally appropriate for all stakeholders during the construction and commissioning phases of the Airport Project.

Grievance submission channels will be established in Uzbek and Russian languages and will include multiple access points such as project information offices, site entrances, local community interfaces (including Mahalla committees), telephone hotlines, email, and dedicated grievance forms. Secure and clearly marked grievance boxes will also be installed at accessible locations within and around the Project site to facilitate written submissions. Locked grievance boxes will be installed at:

- Project Information Centre
- Project Site Office
- Main construction gate
- Worker accommodation
- Mahalla Committee Offices
- Khokimiyat Offices (where agreed)
- Airport Administration Office (during operations)

Boxes will be clearly labelled in Uzbek and Russian.

All grievances received through any channel will be formally logged, acknowledged, and tracked in a centralized grievance register maintained by the Project Company and/or EPC Contractor. Each complaint will be assigned a unique reference number to ensure traceability and timely resolution. Responses will be communicated to the complainant using their preferred communication method, where practicable.

The Project Company will ensure that grievances are addressed in a timely, fair, and culturally sensitive manner. Where a grievance is rejected or cannot be fully resolved in the complainant's favor, clear justification will be provided, and efforts will be made to engage the complainant through meetings or consultations to explain findings, clarify technical issues, and explore feasible alternative solutions.

All grievance cases will be supported by documented records, including description of the issue, investigation findings, root cause analysis, corrective and preventive actions, and follow-up verification where applicable. These records will be securely stored in a dedicated grievance management system and will be made available for review by lenders, independent auditors, and relevant regulatory bodies upon request.

Confidentiality and personal data protection will be strictly maintained. Personal information will be used solely for grievance management purposes and will not be disclosed publicly or used for unrelated purposes.

The effectiveness of the GRM will be monitored regularly through weekly construction EHS meetings, monthly management reviews, and periodic internal and external audits. The system will be continuously improved based on feedback trends, audit findings, and stakeholder input to ensure alignment with IFC Performance Standard 1 and good international industry practice (GIIP).

## 5.4 Grievance Mechanism during Operation

During the operational phase of the Airport, the Grievance Redress Mechanism (GRM) will continue to function as a core component of stakeholder engagement and will remain accessible to all stakeholders, including nearby communities, Project Affected Households (where residual impacts persist), airport users, workers, contractors, and other interested parties.

The GRM will be managed by a designated responsible officer within the Airport Operator (or Project Company, as applicable), who will oversee the receipt, registration, assessment, investigation, and resolution of grievances in a timely and transparent manner. Where required, grievances will be escalated to relevant technical departments or management levels to ensure appropriate resolution.

Multiple grievance submission channels will remain available throughout the operational phase, including dedicated hotline/telephone, email, online submission platform (where applicable), written submissions, and in-person complaints through designated contact points at or near the airport. Information on how to submit grievances will be publicly disclosed in Uzbek and Russian languages at accessible locations such as airport information boards, community notice points, and through local administrative structures (including Mahalla committees).

All grievances will be systematically recorded in a grievance register, including details of the complaint, actions taken, responses provided, and closure status. Records and supporting documentation will be retained for a minimum of five years in accordance with good international industry practice and lender requirements.

The contact details of the designated GRM focal point will be clearly displayed at publicly accessible locations and updated as required. Worker grievances will be managed through a separate but aligned internal mechanism in accordance with national labor legislation and IFC Performance Standard 2 (PS2), ensuring confidentiality and non-retaliation principles. Worker representatives will support communication between employees and management to facilitate effective resolution of workplace-related concerns.

The GRM will be periodically reviewed and improved based on grievance trends, stakeholder feedback, and operational experience to ensure continued effectiveness and alignment with IFC PS1 requirements.

## 5.5 Grievance Procedures for Women, Vulnerable and Disadvantaged Groups

A project-specific Gender Action and Management Plan (GAMP) will be developed for the Airport Project to address risks related to Gender-Based Violence and Harassment (GBVH) and to ensure inclusive engagement and protection of women, vulnerable, and disadvantaged groups. The plan will be developed in alignment with Uzbek national legislation, and applicable lender requirements, and will be implemented by the Project Developer (Vision Invest and Sojitz Corporation) through the Project Company and EPC Contractors.

As no formalized, standalone Health, Safety, Security and Environment (HSSE) Management System has been publicly confirmed for the Project Developers at this stage, the Project will instead develop and implement a project-specific Environmental, Social, Health and Safety

(ESHS) management framework. This framework will incorporate provisions for the prevention of gender-based violence and harassment (GBVH), as well as clear reporting channels and response procedures, in line with internationally recognized good practice standards.

The Gender Action and Management Plan will define:

- Expected standards of behaviour for all workers and contractors.
- Clear reporting and response procedures for GBVH-related incidents.
- Disciplinary measures, including sanctions up to termination of employment.
- Referral pathways to appropriate support services for survivors.
- Confidentiality and non-retaliation principles; and
- Monitoring and reporting arrangements.

In accordance with the Project Labour Working Management Procedures (LWMP), all workers will be informed of the Code of Conduct in languages they understand during induction and onboarding. The Code of Conduct will include explicit provisions on GBVH prevention, reporting mechanisms, disciplinary consequences, and grievance handling procedures.

The Project Company will ensure regular training and awareness programmes for all workers and contractors on GBVH risks, acceptable behaviour, reporting channels, and consequences of misconduct. Particular attention will be given to strengthening awareness among supervisory staff and subcontractors. Efforts will also be made to promote gender representation in relevant roles, including the appointment of designated focal points to provide accessible and trusted support for female workers.

Anonymous and confidential reporting tools will be established for both workers and community members to enable safe reporting of GBVH cases without fear of retaliation. Vulnerable workers, including women, will be provided with targeted awareness and capacity-building initiatives, which may include life skills training, leadership development, and empowerment programmes aimed at strengthening their protection and participation in the Project workforce and community interface.

A monitoring and evaluation system will be implemented to track GBVH related risks, reported cases, response effectiveness, and the overall performance of preventive measures. Findings will be used to strengthen mitigation actions and continuously improve the system.

### 5.5.1 Reporting of Gender Based Violence and Harassment (GBVH)

The Project will establish multiple confidential and accessible reporting channels to enable safe reporting of GBVH incidents by both workers and community members. These channels will ensure confidentiality, accessibility, and protection from retaliation.

For community members, reporting channels may include:

- Community grievance/feedback boxes.
- Toll-free telephone hotline.
- Reporting through Mahalla committees or local community representatives.
- Engagement with women’s support organisations or civil society groups where available.
- Designated focal persons at community engagement points.

For workers, reporting channels may include:

- On-site grievance/feedback boxes.
- Dedicated hotline and email system managed by the Project Company;

- Reporting through supervisors or designated GBVH focal points (with escalation safeguards);
- Online grievance submission through Project communication platforms (where applicable).

Child-friendly and anonymous reporting options will be made available where relevant to ensure that young or vulnerable individuals can safely raise concerns.

All GBVH-related grievances will be recorded in a separate confidential grievance register, distinct from the general grievance log. Access to this register will be strictly limited to designated trained personnel, ensuring confidentiality, sensitivity, and protection of complainants' identities.

In cases involving criminal acts, serious harm, or safety risks, grievances will be escalated to the relevant competent authorities in accordance with Uzbek legal requirements, while ensuring that survivor safety and confidentiality are maintained.

All GBVH-related grievances will be handled in accordance with:

- Applicable national laws of Uzbekistan.
- IFC Performance Standards and Good International Industry Practice (GIIP).
- Project-specific non-retaliation principles; and
- Strict confidentiality protocols.

## 5.6 GRM Process Flow and Timeline

The process flow and timeline below will be followed as part of the GRM. Where complex grievances[7], or other factors are extending the investigation time, the Grievant will be informed of this delay and advised of an updated expected timeline for response.

**Table 5-6 Grievance Process and Timeline**

| Stage | Timeline |
|---|---|
| Grievance Received/Submitted | - |
| Grievance logged and acknowledged | Within seven working days of grievance being submitted |
| Grievance investigated | Within 14 working days of grievance being submitted |
| Proposed resolution conveyed to grievant (simple grievances) | Within 14 working days of grievance being submitted |
| Proposed resolution conveyed to grievant (complex grievances) | Within 21 working days of the grievance being submitted |
| **If applicable following dissatisfaction of resolution by Grievant** | |
| Actions to re-assess grievance/propose new solution/inform Grievant of final decision | Within 14 working days of notification of dissatisfaction by Grievant |
| In the event that a grievance cannot be resolved between the two parties a mediator will be involved i.e. the GRM Committee | Within 14 working days of notification of dissatisfaction by the Grievant. |

[7] In cases of sensitive grievances, such as those involving multiple interests in the affected communities, land or asset disputes or where a more complex investigation is required, Vision Invest, Sojitz Corporation, and the ESIA consultant will seek advice from the Grievance Redress Committee (GRC)and then propose a resolution in consultation with the affected parties. Such cases will be addressed and communicated to the complainants within 21 working days of the grievance(s) being submitted.

The Project-level GRM will maintain a comprehensive and auditable record of all grievances received, actions taken, and closure status. This system will support timely resolution of issues and provide input to management reviews and external reporting to authorities and lenders where required.

GRM performance will be monitored through key performance indicators (KPIs) to assess effectiveness and responsiveness.

**Table 5-7 Monitoring Indicators for Grievance Management and Compliance**

| No. | KPI | Measurement Action | Frequency | Goal |
|---|---|---|---|---|
| 1 | Number of valid grievances submitted | Project Grievance Register | Weekly | Managed and tracked |
| 2 | Number of resolved grievances | Project Grievance Register | Weekly | 100% resolution |
| 3 | Outstanding/open grievances | Project Grievance Register | Weekly | Minimized / Zero backlog |
| 4 | Grievances not addressed within defined timeframe | Project Grievance Register | Weekly | Zero |
| 5 | Number of grievances related to GBV/SEA/SH | Project Grievance Register | Weekly | Zero tolerance (all cases addressed per protocol) |
| 6 | Average grievance resolution time (by severity level) | Project Grievance Register | Weekly | Within 14 days from receipt |
| 7 | Category of grievances (e.g. noise, dust, traffic, safety, employment) | Project Grievance Register | Monthly | N/A |
| 8 | Number of incidents/non-compliances linked to SEP or GRM failures | Submission of Incident Report and/or Non-Compliance Report (NCR) | Weekly | Zero |

In addition to the above, all grievances will be documented within the grievance register.

# 6.0 Air Emission and Ambient Air Quality

This chapter assesses the potential impacts that may occur as a result of the Project's construction and operational activities on ambient air quality. It further looks to identify measures that can be undertaken and/or implemented to mitigate, manage and monitor such impacts, as necessary.

## 6.1 Applicable Requirements and Standards

### 6.1.1 National Standards

The Law of the Republic of Uzbekistan "On Atmospheric Air Protection" (1996, amended on 2025)

This regulation specifies standards, quality and harmful effects norms, requirements on fuels, lubricants, production and operation of vehicles and other transport means and equipment, ozone layer protection requirements, obligations of enterprises, institutions and organisations toward atmospheric protection, and compensations of damages from atmospheric pollutions.

SanR&N 0053-23 – "Hygienic standards. The list of maximum permissible concentrations of pollutants in the ambient air of settlements in the territory of the RUz" with the addition in the Decision of the Committee for Sanitary and Epidemiological Welfare and Public Health under the Ministry of Health of the RUz "On the Addition of Permissible Hygienic Standards for the Content of Harmful and Toxic Substances, Productive Microorganisms, Bacterial Preparations and Aeroions in the Air of Residential Premises" (account number 253, dated 27.05.2024).

**Table 6-1 Ambient Air Quality MPC (mg/m$^3$)**

| Pollutant | (MPC mg/m$^3$) | | | |
|---|---|---|---|---|
| | One-time | 24-hour | Monthly | Annual |
| $NO_2$ | 0.085 | 0.06 | 0.05 | 0.04 |
| NO | 0.6 | 0.25 | 0.12 | 0.06 |
| CO | 5 | 4 | 3.5 | 3 |
| $SO_2$ | 0.5 | 0.2 | 0.1 | 0.05 |
| $PM_{10}$ | 0.5 | 0.3 | - | 0.05 |
| $PM_{2.5}$ | 0.5 | 0.3 | - | 0.05 |

***Note:***

- Maximum one-time concentration - the highest concentration detected at 20-30-minute sampling.
    - Average daily concentration is the average of the one-time concentrations detected during the day or obtained with continuous 24-hour sampling.
    - Monthly average concentration is the average of the average daily concentration detected during the month.
    - Average annual concentration - the average of the number of average monthly concentrations revealed during a year in the course of one-time sampling.

**"Guidelines for Airport Planning (Land Use and Environmental Management)"** is the document approved by the Civil Aviation Agency of the Republic of Uzbekistan on 28.04.2023 which provides information on air quality, pollutants and pollution sources in the airport area.

### 6.1.2 Lenders' Requirements

As per the IFC, EBRD, (and as outlined in the OECD Common Approaches) the WBG EHS Guidelines for Airports are applicable for the Project and provide advice on preventing, minimising and controlling emissions to air from ground services within an airport.

#### 6.1.2.1 WHO Ambient Air Quality Standards

The WHO ambient air quality standards often required by lenders, are presented in table below.

**Table 6-2 WHO Ambient Air Quality Standards (µg/m$^3$)**

| | Guideline | Interim Target 1 | Interim Target 2 | Interim Target 3 | Interim Target 4 |
|---|---|---|---|---|---|
| Nitrogen Dioxide | | | | | |
| 1-Hour | 200 | - | - | - | - |
| 24-Hours* | 25 | 120 | 50 | - | - |
| Annual | 10 | 40 | 30 | 20 | - |
| Carbon Monoxide | | | | | |
| 15-minute | 100000 | - | - | - | - |
| 1-Hour | 35000 | - | - | - | - |
| 8-Hours | 10000 | - | - | - | - |
| 24 Hours* | 4000 | 7000 | - | - | - |
| Sulphur Dioxide | | | | | |
| 10 minutes | 500 | - | - | - | - |
| 24 Hours* | 40 | 125 | 50 | - | - |
| Particulate Matter not exceeding 10µm in diameter ($PM_{10}$) | | | | | |
| 24 Hours* | 45 | 150 | 100 | 75 | 50 |
| Annual | 15 | 70 | 50 | 30 | 20 |
| Particulate Matter not exceeding 2.5µm ($PM_{2.5}$) | | | | | |
| 24 Hours* | 15 | 75 | 50 | 37.5 | 25 |
| Annual | 5 | 35 | 25 | 15 | 10 |
| Ozone | | | | | |
| 8 Hour Daily Maximum | 60 | 70 | 100 | - | - |
| *Allowance of 3-4 days exceedance per year (99th percentile) | | | | | |

WHO Interim Target 1 values have been adopted as the project-specific standards as they represent internationally recognised health-based interim targets intended for application in regions where achievement of the WHO Air Quality Guideline values is not yet feasible, while providing a progressive pathway towards improved air quality. The more stringent WHO Interim Targets (2,3 & 4) and the WHO Air Quality Guideline values are presented for contextual benchmarking only to demonstrate the Project's performance against increasingly protective health-based criteria and do not form part of the formal impact significance assessment.

In addition to the WHO Air Quality Standards and national regulations, the Project will also consider the IFC General Environmental, Health, and Safety Guidelines (2007), which outline good international industry practice (GIIP) for air emissions management.

#### 6.1.2.2 European Union Standards

The EU ambient air quality standards are also required ERBD. The relevant EU air quality standards as set out within EU Directive 2008/50/EC have also been used within this assessment and are provided in Table 6-3.

**Table 6-3 EU Ambient Air Quality Standards**

| Pollutant | Averaging Period | Standard (µg/m$^3$) |
|---|---|---|
| Nitrogen dioxide | 1-Hour | 200 |
| | Annual | 40 |
| Carbon monoxide | 8-Hour | 10000 |
| Particulate matter ($PM_{10}$) | 24-Hour | 50 |
| | Annual | 40 |
| Particulate matter ($PM_{2.5}$) | Annual | 20 |
| Benzene | Annual | 5 |

### 6.1.3 Project-Specific Standards

For the purpose of the ESIA, project-specific ambient air quality standards have been defined based on the most stringent of applicable national standards, WHO Air Quality Guidelines (Interim Target 1) and EU limit values. These standards as shown in Table 6-4 (with the most stringent limits highlighted) forms the basis for all baseline evaluation, modelling assessment, and impact significance determination.

**Table 6-4 Summary of Project Specific Standards**

| Pollutant | Averaging Period | National | WHO | EU Limit |
|---|---|---|---|---|
| $NO_2$ | 1-hour | 85 | - | 200 |
| | 24-hour | 60 | 120 | - |
| | Annual | 40 | 40 | 40 |
| CO | 8-hour | - | - | 10000 |
| | 24-hour | 4000 | 7000 | - |
| | Annual | 3000 | - | - |
| $SO_2$ | 24-hour | 200 | 125 | - |
| | Annual | 50 | - | - |
| $NH_3$ | 24-hour | 120 | - | - |
| | Annual | 40 | - | - |
| $PM_{10}$ | 24-hour | 300 | 150 | 50 |
| | Annual | 50 | 70 | 40 |

| Pollutant | Averaging Period | National | WHO | EU Limit |
|---|---|---|---|---|
| $PM_{2.5}$ | 24-hour | 300 | 75 | - |
| | Annual | 50 | 35 | 20 |
| Ozone | 8-hour | - | 70 | - |
| Benzene | Annual | - | - | 5 |

Diffusion tube monitoring provides an integrated concentration over a period of 3 weeks, which does not directly correspond to the averaging periods defined under WHO or EU air quality standards. In this context, Uzbekistan national Maximum Permissible Concentrations (MPCs), which include longer averaging periods such as monthly values, provide a more appropriate reference for comparison with time-integrated passive sampling results. Accordingly, national standards have been used for the interpretation of diffusion tube data.

## 6.2 Scoping

For this ESIA, the scope of air quality assessment included in the following:

- Review of meteorological data in order to understand the climatic conditions in the vicinity of the Project.
- Desktop study followed by ground-truthing to confirm the locations of nearby areas that may be sensitive to changes in ambient air quality.
- Review of available construction and operational information and data including expected type of construction equipment and current and future emission sources.

Baseline of ambient air quality at the Project area and the surroundings were established by undertaking sampling using diffusion tubes and continuous air quality monitoring, for the parameters $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO, and VOCs.

A qualitative assessment is made in relation to the potential impacts of construction dust, gaseous emissions and odour.

Potential impacts during operation are assessed using the ADMS Airport dispersion model, to predict the emissions generated from the airport itself, for the parameters that likely to arise which are $NO_x$, particulate matter, CO and hydrocarbons.

Besides the emissions from the airport operation, vehicular emissions from the access road to the airport using preliminary traffic data available are also included in the assessment.

As outlined above, a quantitative air quality assessment has been undertaken for the opening year (2030) airport configuration of 20 MAP, which represents the Project currently proposed for development and for which sufficient design and operational information is available to support robust dispersion modelling. The ultimate masterplan capacity of approximately 46 MAP has not been quantitatively modelled because this expansion represents a long-term conceptual development rather than a defined project phase.

At the current stage of planning, the key parameters required to undertake a technically robust air quality assessment remain undefined. These include, but are not limited to:

- Timing and phasing of future expansion works;
- Future aircraft fleet composition, engine technologies and operational characteristics;
- Aircraft movement profiles, including runway utilisation, taxiing arrangements and auxiliary power unit (APU) usage;
- Future landside transport demand and access arrangements, including passenger, employee and freight traffic volumes, the final configuration of the wider area road

network, the planned new toll road and associated junctions, traffic distribution across the surrounding road network, and vehicle fleet composition.

- Future airport energy supply strategy, including the extent of electrification of ground support equipment, on-site renewable energy generation and other low-emission technologies; and
- Future operational and mitigation measures that may be implemented to minimise emissions in line with evolving regulatory requirements and industry best practice.

Given these uncertainties, any quantitative modelling of the ultimate 46 MAP scenario would necessarily rely on numerous assumptions that cannot currently be substantiated. Such assumptions would introduce a level of uncertainty that would reduce the technical robustness and reliability of the assessment and could result in predictions that are not representative of the future operational airport.

Furthermore, the ultimate expansion is expected to occur over a long-term planning horizon, during which significant advances in aviation, transport and energy technologies are anticipated. These are expected to include continued improvements in aircraft engine emission performance, increased penetration of sustainable aviation fuels (SAF), progressive electrification of airport ground operations and landside vehicle fleets, greater use of fixed electrical ground power in place of aircraft auxiliary power units, decarbonisation of the national electricity grid, and implementation of increasingly stringent international and national emission standards. These technological and regulatory developments are expected to influence future air quality emissions and concentrations, although the magnitude and timing of these changes cannot currently be predicted with sufficient confidence for quantitative modelling.

Accordingly, undertaking dispersion modelling for the ultimate 46 MAP scenario at this stage would not provide a meaningful or proportionate assessment and could present a misleading representation of future environmental conditions. Instead, the ESIA adopts a phased assessment approach whereby quantitative modelling is undertaken for the defined opening year development, while recognising that any future expansion beyond the currently assessed phase will be subject to separate design development, environmental assessment and regulatory approval processes. As part of those future assessments, a project-specific air quality assessment will be undertaken using the detailed design information, operational forecasts and prevailing emission factors available at that time, ensuring that the assessment reflects the actual characteristics of the proposed expansion and contemporary regulatory and technological conditions.

Although the ultimate airport development would result in increased passenger throughput and aircraft movements, this would not necessarily result in a proportionate deterioration in local air quality. Over the long-term planning horizon for the ultimate 46 MAP scenario, significant advancements in aircraft engine technology, increasing adoption of sustainable aviation fuels, progressive electrification of airport ground support equipment and landside vehicle fleets, greater use of fixed electrical ground power in place of aircraft auxiliary power units, and continued decarbonisation of the electricity grid are expected to reduce emissions of key local air pollutants. In addition, future expansion phases would incorporate contemporary design standards and operational mitigation measures that reflect applicable regulatory requirements and industry best practice at the time of implementation.

## 6.3 Sensitive Receptors

Receptors that could be potentially affected due to changes in ambient air quality are shown in following table.

**Table 6-5 Potential Air Quality Receptors**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Nearby Residential Communities | **High** | Residential areas include permanent and potentially vulnerable populations (children, elderly, and individuals with pre-existing health conditions). These receptors are highly sensitive to changes in ambient air quality from construction and operational emissions. |
| Commercial, Industrial and Agricultural Land Uses | **Medium** | These receptors involve occupational exposure and productive land uses. Workers are present during defined hours and agricultural activities may be affected by dust deposition and pollutant exposure. While sensitive to air quality changes, they are generally less vulnerable than permanent residential and community receptors |
| Project workers | **Medium** | Medium sensitivity as workers may experience short-term exposure to air emissions within the worksite, which will be managed through occupational controls and health and safety measures including the use of PPEs. |

## 6.4 Observations and Baseline Conditions

### 6.4.1 Meteorological Conditions

Based on 'Climate Risk Country Profile: Uzbekistan' (2021, ADB & WBG)[8], Uzbekistan has an arid and continental climate identified by substantial variations in temperature within days and between seasons. Sizeable parts of the country (79% by area) have flat topography either in the form of semi-desert steppes or desert zone. The remaining south-eastern areas have a continental climate, including the area covering the largest cities of Tashkent and Samarkand, and contain high mountains forming part of the Tien-Shan and Gissar-Alai Ranges. Summers in the country has an average monthly temperature of 27.2 $^0$C, with the hottest in July. The average daily maximum temperature in many of the major cities is 35 $^0$C. While the winters has average monthly temperatures of -1 $^0$C to -3 $^0$C, between December and February.

For the precipitation levels, many western areas of the country receive less than 100 millimetres (mm) of precipitation per year, while the area on east and south-east could receive up to 800 – 900 mm per year. Data from World Meteorological Organization[9], between January to December, the lowest mean daily minimum temperature is in December with – 0.3 $^0$C. The hottest month is in July, with the highest mean daily temperature of 35.7 $^0$C. The mean number of precipitation days varies between months, from the lowest is in August with 1.9 days and the highest is 13.8 days in March.

Figure 6-1 depicts the wind rose using the data recorded at the existing Tashkent International Airport for the year 2023 and 2024 which wind blowing predominantly from an easterly direction.

[8] https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15838-Uzbekistan%20Country%20Profile-WEB.pdf

[9] https://worldweather.wmo.int/en/city.html?cityId=115

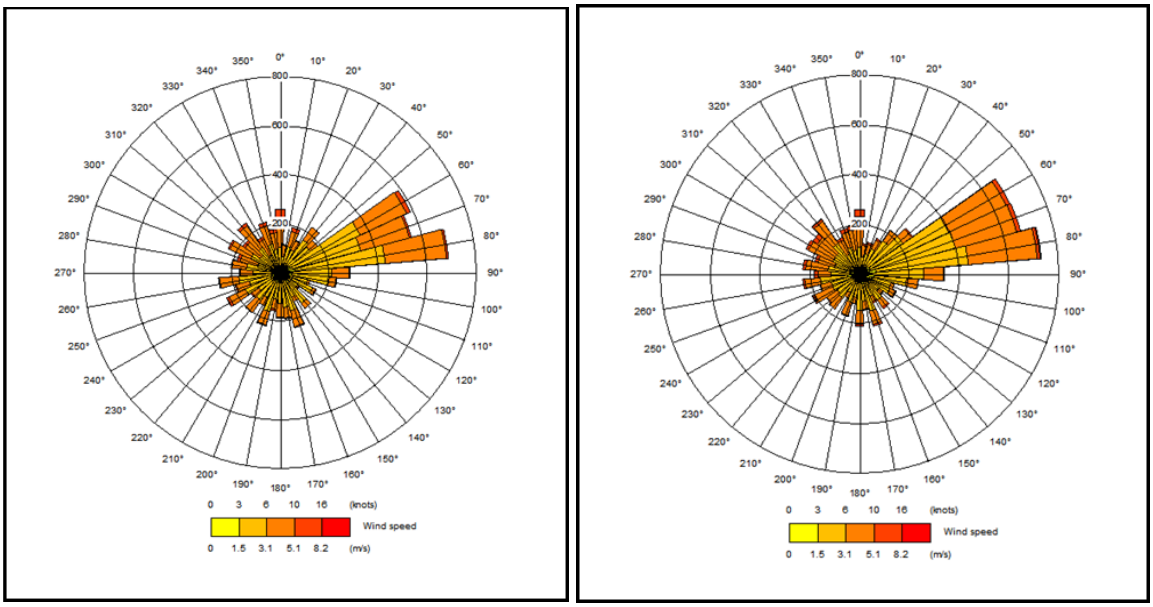



**Figure 6-1 Windrose at Tashkent International Airport, 2023 and 2024**

### 6.4.2 Local Influence on Air Quality

The proposed Project site is located approximately 23 kilometres south of Tashkent city and about 20km from the existing Tashkent International Airport, in a predominantly flat rural area within the territory of the Tashkent Province, Urta-Chirchik and Kuyi-Chirchik districts.

The Project site current condition features mainly a rural area predominantly used for farming including growing fruit trees. There are no major anthropogenic sources of air emissions within the Project site or nearby areas. Local farming may also result in local air quality impacts, including for Ammonia ($NH_3$) and fine particulates (such as $PM_{2.5}$), particularly where there is fertiliser application, burning of agricultural residues and poor manure management. Such impacts may be seasonal, however, based on the observed farming techniques (of limited sophistication) these are unlikely to result in significant long-term impacts to the airshed.

**Figure 6-2 The conditions surrounding the Project site**

### 6.4.3 Air Quality Monitoring Overview

Air quality measurements were conducted as part of the ESIA baseline survey for the following parameters: $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO and VOCs. Continuous ambient air quality monitoring was undertaken at two (2) locations (AQM-1 an d AQM-2) over a 10-day period. These monitoring locations were selected to represent air quality at the Project site and at sensitive receptors situated close to the Project site.

In addition, medium-term passive diffusion tube monitoring was undertaken for $NO_2$, $SO_2$, $O_3$ and VOCs at eleven (11) locations. The diffusion tubes were deployed for two (2) monitoring rounds, with each round consisting of a three-week exposure period. The monitoring network included both baseline locations representative of existing ambient conditions and roadside locations along existing roads to enable verification and calibration of the traffic air quality model.

The monitoring data are presented in this ESIA in units of µg/m³ and have been assessed against applicable national ambient air quality standards, as well as the WHO Air Quality Guidelines, as referenced in the WBG/IFC EHS Guidelines.

The ambient air quality monitoring locations are indicated Figure 6-3 and comprised the following:

- AQ1 to AQ3: Roadside monitoring locations used to verify the traffic model. These were positioned approximately 1–2 metres from the edge of the existing roads.
- AQ4, AQ5 and AQ6: Monitoring locations at settlements situated close to the Project site.

- AQ7: A monitoring location situated close to the route of the proposed new highway.
- AQ8, AQ9 and AQ10: Additional monitoring locations at settlements close to the Project site.
- AQ11: A monitoring location situated within the Project site boundary.

As outlined above, the monitoring locations are focused on receptors closest to the Project site and along potential future roads, where impacts are likely to be more localised.

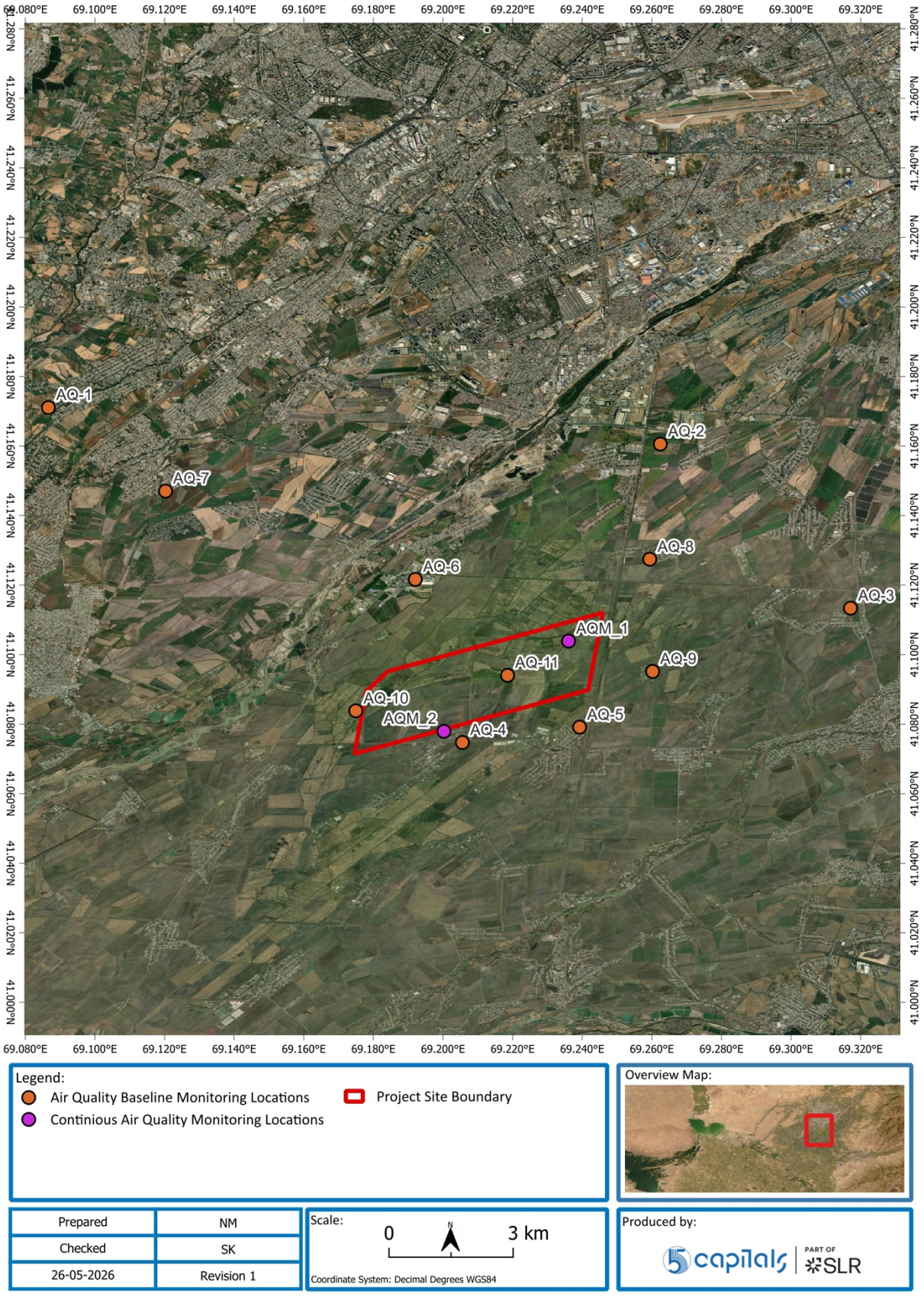



**Figure 6-3 Air Quality Baseline Monitoring Locations**

### 6.4.4 Air Quality Monitoring Results

#### 6.4.4.1 Continuous Air Quality Monitoring

To characterise existing ambient air quality conditions at the Project location, continuous air quality monitoring was undertaken at two monitoring stations (AQM-1 and AQM-2). Monitoring was conducted from 27 November to 09 December 2025 at AQM-2, and from 13 to 26 December 2025 at AQM-1.

The parameters measured during the monitoring campaign included CO, $NO_2$, $O_3$, $SO_2$, $PM_{10}$ and $PM_{2.5}$. The temporal trends in pollutant concentrations at both locations are presented in Figure 6-4 to Figure 6-14.

Based on the monitoring results:

Concentrations of CO, $NO_2$ and $SO_2$ at both AQM-1 and AQM-2 were generally compliant with the applicable national ambient air quality standards and relevant guideline values throughout the monitoring period.

$O_3$ concentrations were within applicable standards during the monitoring campaign. The observed diurnal pattern occurs because ground-level ozone is a secondary pollutant formed through photochemical reactions between Nitrogen oxides ($NO_x$) and Volatile Organic Compounds (VOCs) in the presence of sunlight. During daylight hours, particularly under strong solar radiation, ozone formation is enhanced. At night, in the absence of sunlight, ozone production ceases and concentrations decline due to atmospheric dispersion and chemical reactions.

Elevated concentrations of particulate matter ($PM_{10}$ and $PM_{2.5}$) were recorded, both at AQM-1 and AQM-2. At this location, periodic exceedances of the applicable standards were observed, associated with ongoing local activities and short-term increases in emissions. The results indicate that these exceedances were temporary in nature and corresponded with specific activity periods rather than sustained elevated background concentrations.

The elevated particulate matter concentrations are considered to be influenced by local emission sources. Typical sources of PM include fuel combustion (e.g., motor vehicles and stationary sources), and agricultural operations. Considering the land uses and activities surrounding the monitoring locations, the primary contributors to the recorded exceedances at AQM-2 are understood to be agricultural activities (including soil disturbance and open land exposure) and vehicle emissions along nearby roads.

These results indicate that while gaseous pollutants are generally within acceptable limits, background particulate matter concentrations, particularly at AQM-2 are periodically elevated.

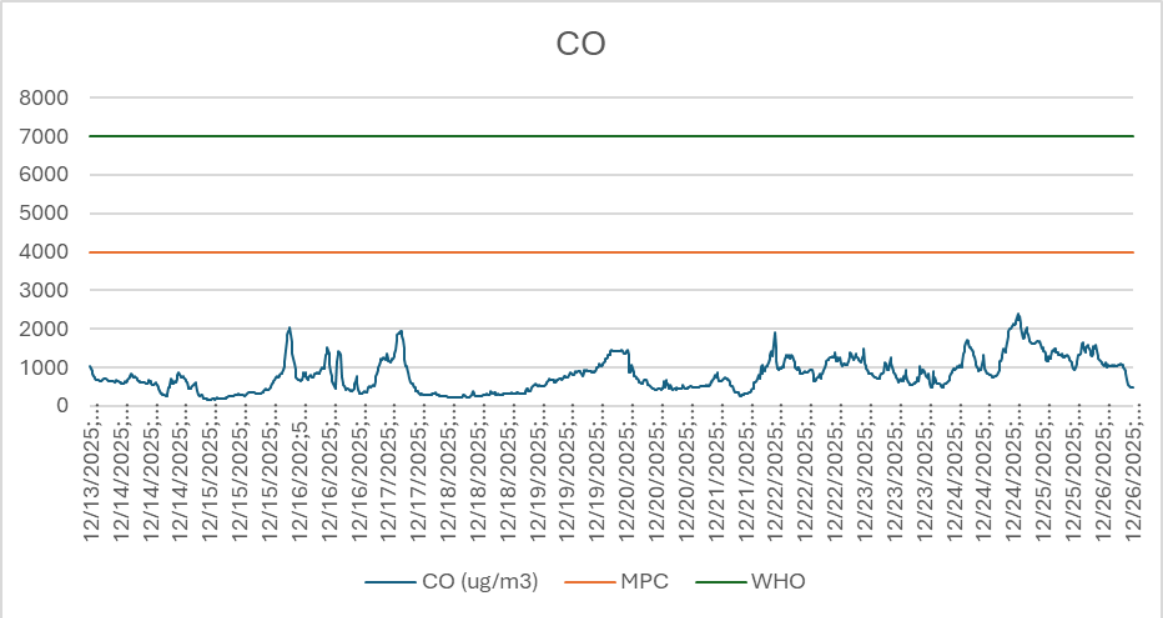



**Figure 6-4 Trend of CO concentration at AQM-1**

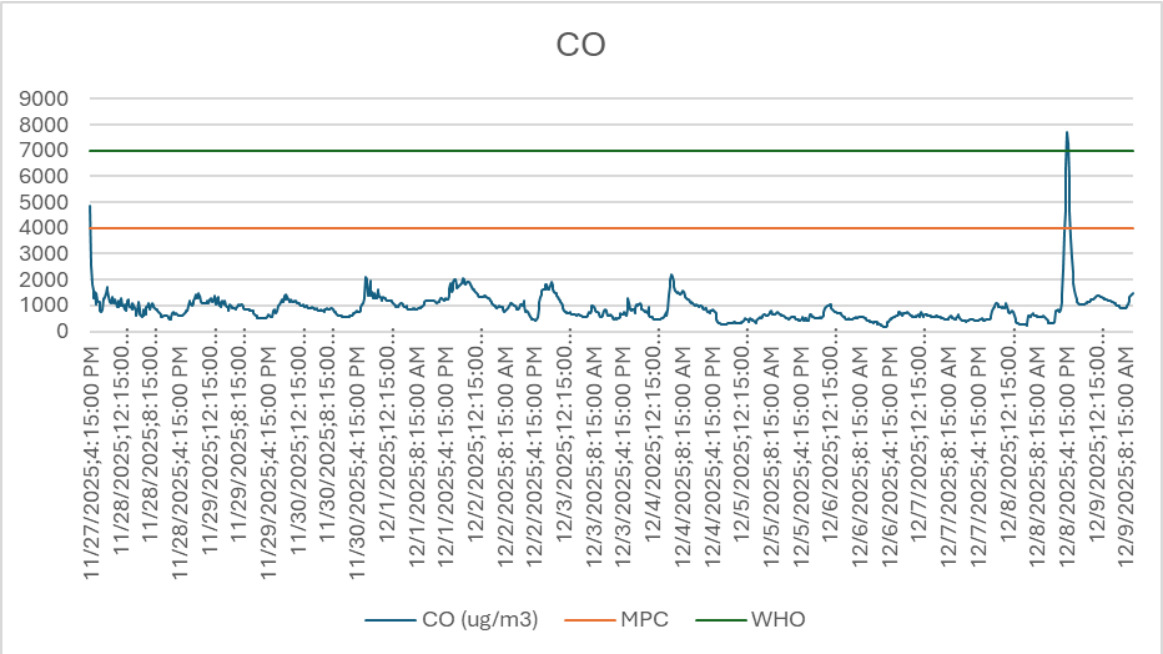



**Figure 6-5 Trend of CO concentration at AQM-2**

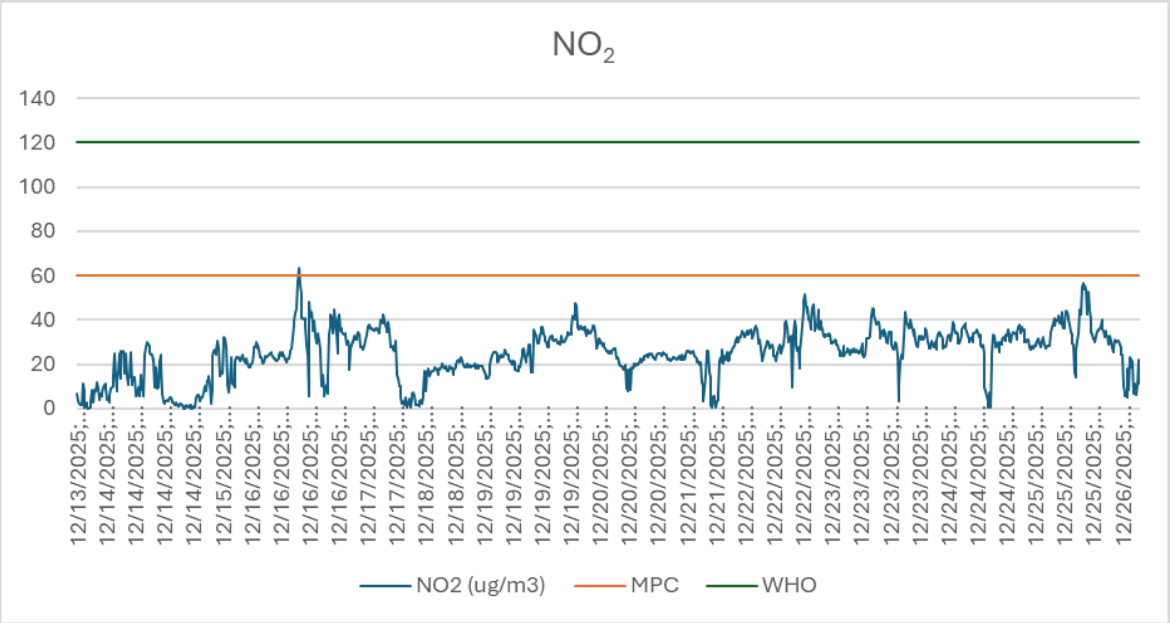



**Figure 6-6 Trend of NO2 concentration at AQM-1**

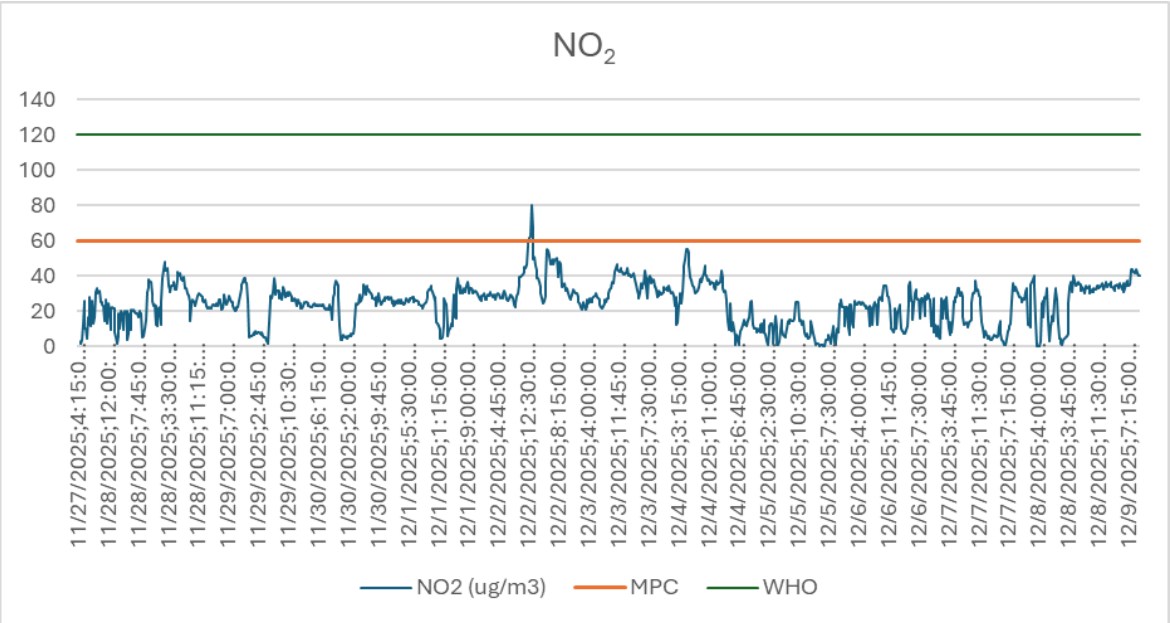



**Figure 6-7 Trend of NO2 concentration at AQM-2**

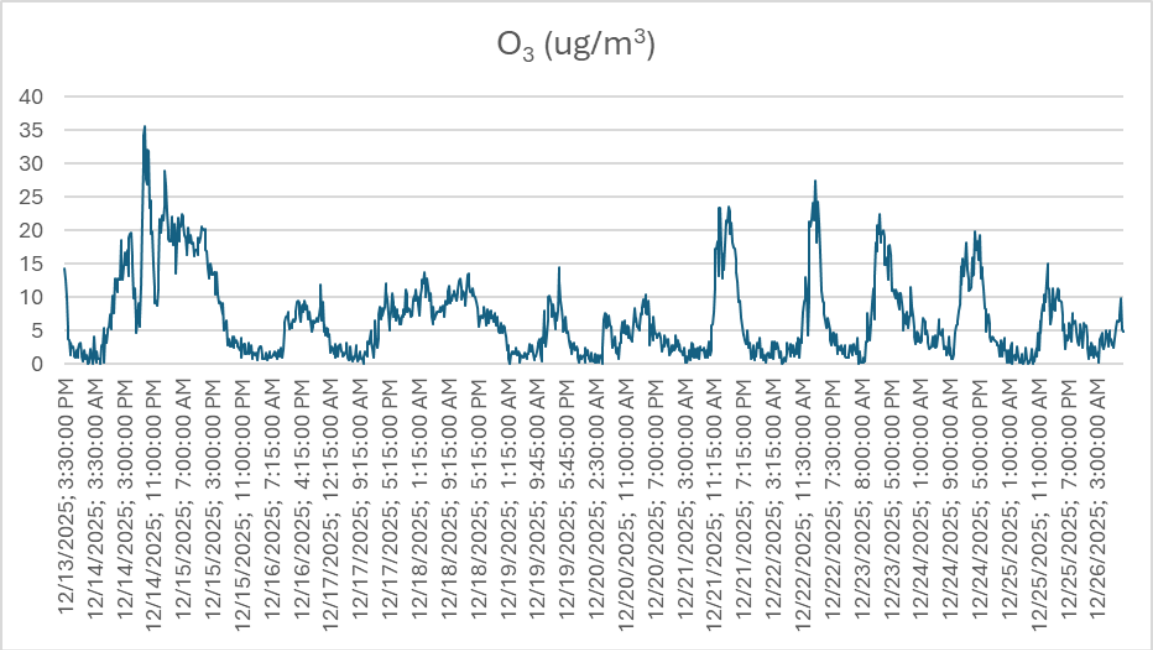



**Figure Trend of $O_3$ concentration at AQM-1**

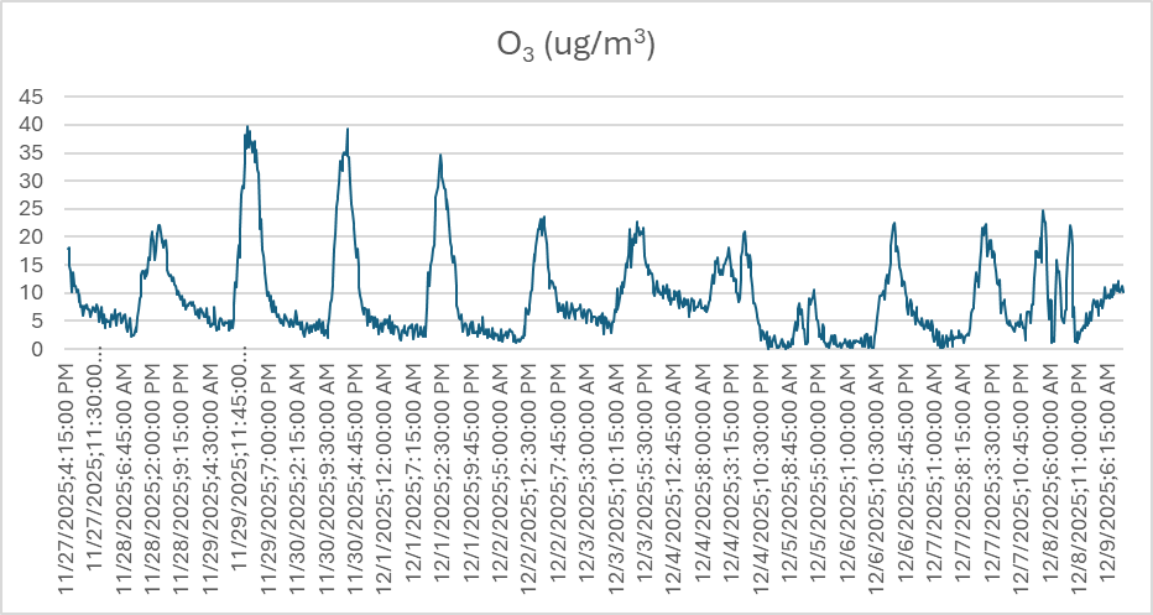



**Figure 6-8 Trend of $O_3$ concentration at AQM-2**

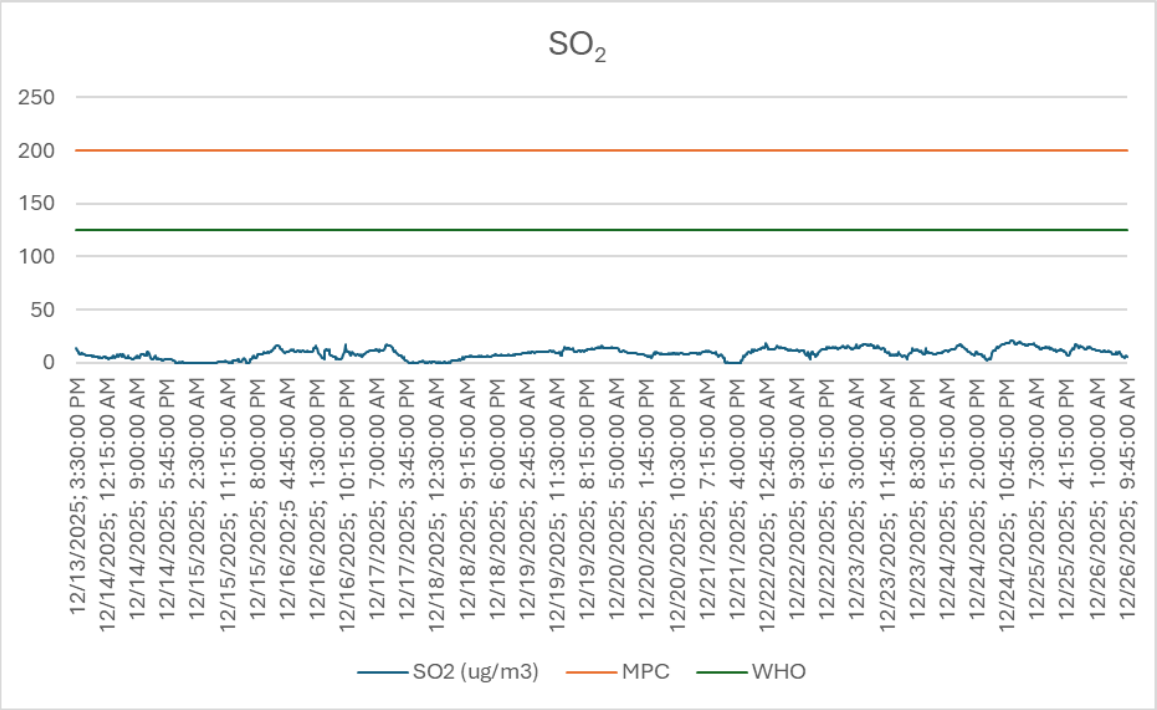



**Figure 6-9 Trend of $SO_2$ concentration at AQM-1**

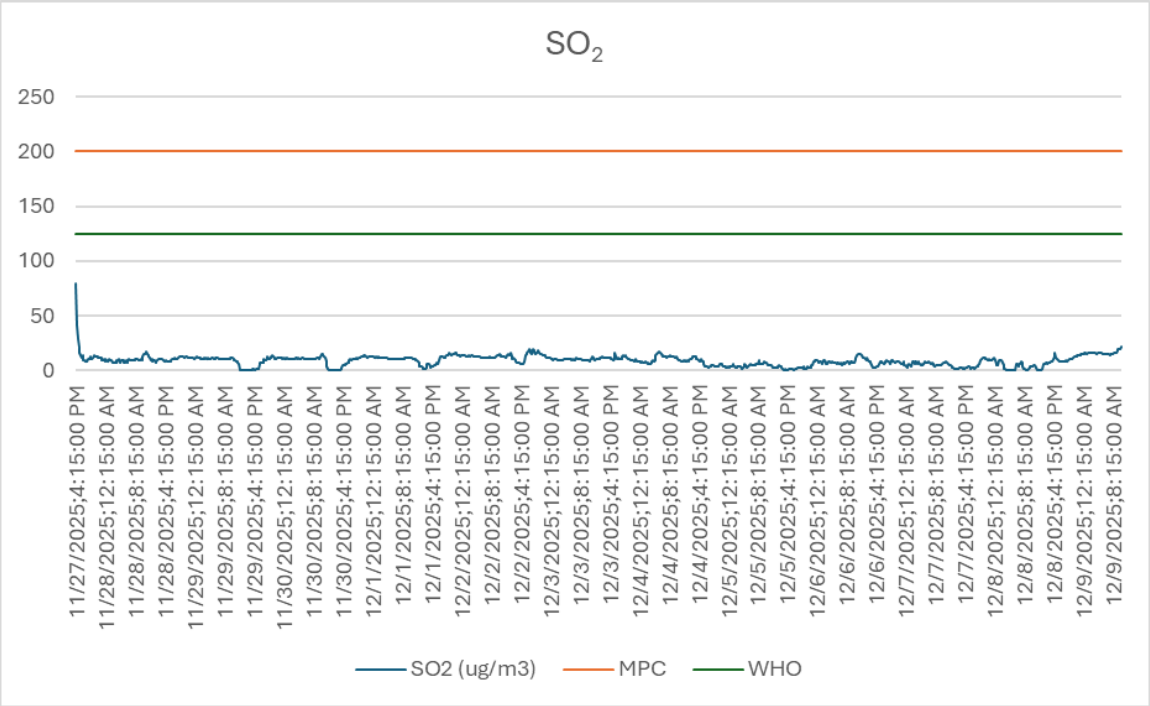



**Figure 6-10 Trend of $SO_2$ concentration at AQM-2**

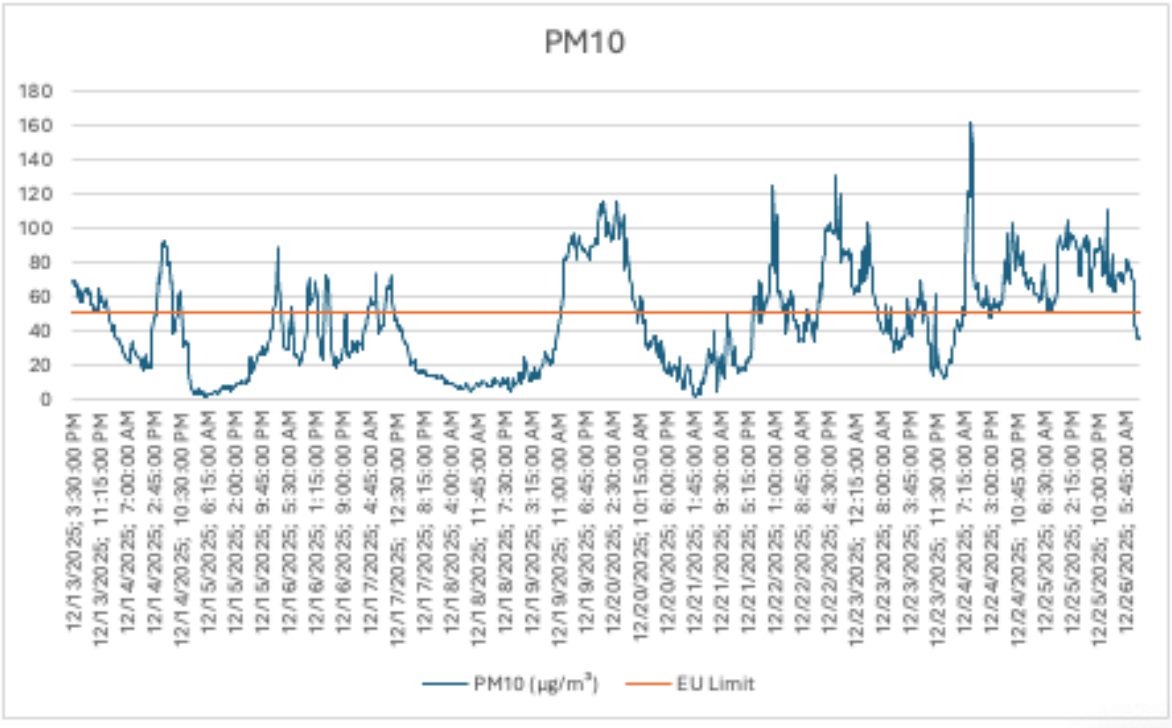



**Figure 6-11 Trend of $PM_{10}$ concentration at AQM-1**

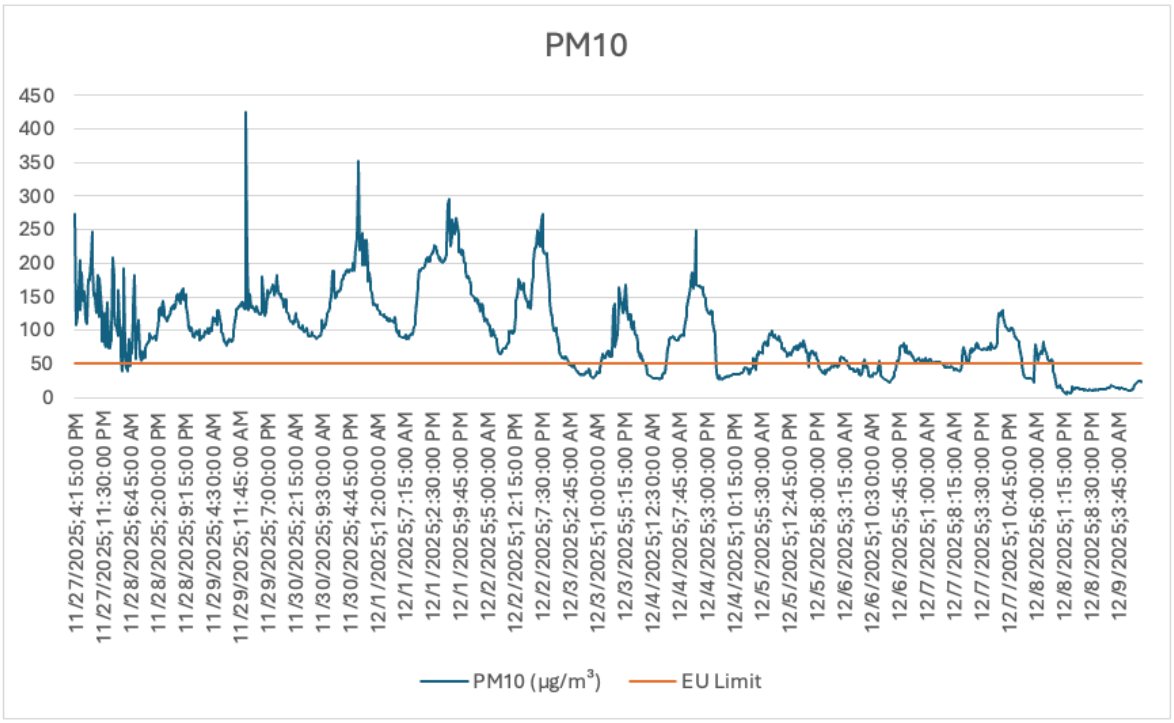



**Figure 6-12 Trend of $PM_{10}$ concentration at AQM-2**

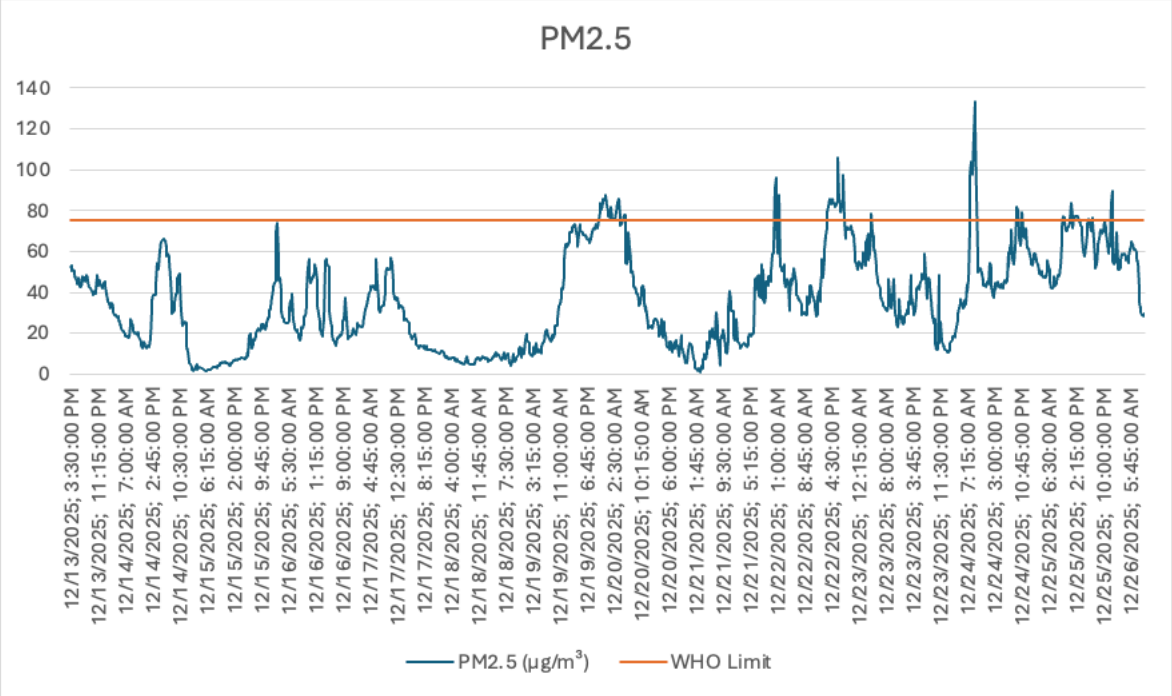



**Figure 6-13 Trend of $PM_{2.5}$ at AQM-1**

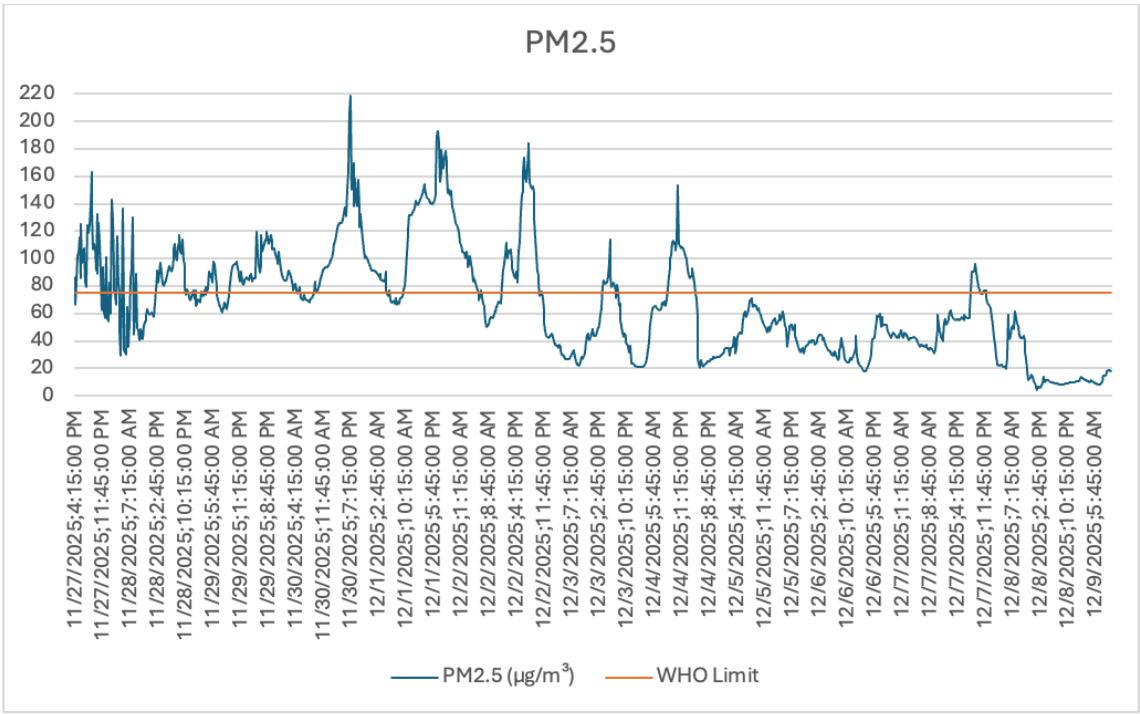



**Figure 6-14 Trend of $PM_{2.5}$ at AQM-2**

### 6.4.4.2 Passive Air Sampling – Diffusion Tubes

In addition to the continuous air quality monitoring described above, passive air sampling using diffusion tubes was undertaken to characterise medium-term ambient concentrations of selected gaseous pollutants and volatile organic compounds (VOCs).

Passive diffusion tubes are a widely accepted method for monitoring time-averaged concentrations of gaseous pollutants. The method operates on the principle of molecular diffusion, whereby pollutants diffuse along a concentration gradient into a tube containing an absorbent material. The pollutant is subsequently analysed in an accredited laboratory to determine the average ambient concentration over the exposure period.

As outlined earlier, two monitoring rounds were undertaken. Each round consisted of approximately three weeks of exposure at up to eleven (11) monitoring locations representative of roadside environments, settlements, and on-site conditions. Duplicate samples were collected for each parameter.

**Round 1 Monitoring Results**

$SO_2$, $O_3$ and $NO_2$

The results of Round 1 monitoring for $SO_2$, $O_3$ and $NO_2$ are presented in Table 6-6, with the exceedances highlighted. The results were compared against the applicable maximum permissible monthly limits as per national standards.

**Table 6-6 $SO_2$, $O^3$, and $NO_2$ Concentrations on Round 1 Diffusion Tube Sampling**

| No | Location | Parameter | | | | | |
|---|---|---|---|---|---|---|---|
| | | MPC* | $SO_2$ (µg/m$^3$) | MPC* | $O_3$ (µg/m$^3$) | MPC* | $NO_2$ (µg/m$^3$) |
| 1 | AQ4 (A) | 100 | 20.03 | - | 61.0 | 50 | 34.88 |
| 2 | AQ4 (B) | | 3.33 | | 28.7 | | 26.30 |
| 3 | AQ5 (A) | | 23.76 | | 36.6 | | 32.26 |
| 4 | AQ5 (B) | | 23.49 | | 35.2 | | 32.55 |
| 5 | AQ1 (A) | | 16.46 | | 32.6 | | 50.51 |
| 6 | AQ1 (B) | | 16.20 | | 23.6 | | 51.68 |
| 7 | AQ7 (A) | | 15.98 | | 23.3 | | 45.21 |
| 8 | AQ7 (B) | | 16.53 | | 27.2 | | 44.28 |
| 9 | AQ3 (A) | | 31.39 | | 21.4 | | 42.30 |
| 10 | AQ3 (B) | | 29.55 | | 27.5 | | 41.38 |
| 11 | AQ10 (A) | | 14.42 | | 19.7 | | 32.55 |
| 12 | AQ10 (B) | | 17.52 | | 23.0 | | 31.59 |
| 13 | AQ11 (A) | | 20.19 | | 23.2 | | 33.40 |
| 14 | AQ11 (B) | | 20.66 | | 23.1 | | 34.16 |
| 15 | AQ6 (A) | | 19.91 | | 16.7 | | 43.14 |
| 16 | AQ6 (B) | | 20.08 | | 19.11 | | 43.54 |
| 17 | AQ8 (A) | | 16.45 | | 18.36 | | 31.74 |
| 18 | AQ8 (B) | | 16.48 | | 15.3 | | 33.01 |
| 19 | AQ2 (A) | | 16.66 | | 13.1 | | 45.72 |
| 20 | AQ2 (B) | | 10.82 | | 20.5 | | 47.78 |

* = national standards, monthly, in µg/m3

Note: tubes were unrecovered for AQ9

Based on the results:

$SO_2$ concentrations are well below the applicable national monthly Maximum Permissible Concentration (MPC) of 100 µg/m³. $O_3$ concentrations ranged from 13.1 to 61.0 µg/m³. No monthly MPC value is available for Ozone, however, was observed to be below its WHO 8-hr average limits.

$NO_2$ concentrations ranged from 26.30 to 51.68 µg/m³, compared with the national monthly MPC of 50 µg/m³.

All locations complied with the national standards for $SO_2$. For $NO_2$, all monitoring locations were compliant except AQ1 (both A and B tubes), where marginal exceedances of the monthly MPC were recorded (50.51 µg/m³ and 51.68 µg/m³). These slightly elevated concentrations are likely attributable to local traffic emissions and nearby anthropogenic activities.

Overall, ambient concentrations of $SO_2$ and $NO_2$ during Round 1 indicate generally good baseline air quality conditions in the Project area, with isolated localised $NO_2$ elevations.

BTEX (Benzene, Toluene, Ethylbenzene and Xylene)

BTEX compounds were also monitored at the same locations during Round 1. Results are shown in Table 6-7.

**Table 6-7 BTEX Concentration on Round 1 Diffusion Tube Sampling**

| No | Location | Parameters | | | |
|---|---|---|---|---|---|
| | | Benzene (µg/m3) | Toluene (µg/m3) | Ethylbenzene (µg/m3) | m/p-Xylene (µg/m3) |
| 1 | AQ4 (A) | 6.00 | 68.00 | 29.00 | 29.00 |
| 2 | AQ5 (A) | 5.70 | 50.00 | 36.00 | 36.00 |
| 3 | AQ5 (B) | 5.80 | 60.00 | 36.00 | 37.00 |
| 4 | AQ1 (A) | 11.00 | 78.00 | 51.00 | 55.00 |
| 5 | AQ1 (B) | 10.00 | 82.00 | 38.00 | 41.00 |
| 6 | AQ7 (A) | 11.00 | 67.00 | 45.00 | 48.00 |
| 7 | AQ7 (B) | 12.00 | 93.00 | 29.00 | 33.00 |
| 8 | AQ3 (A) | 6.30 | 58.00 | 46.00 | 47.00 |
| 9 | AQ3 (B) | 6.50 | 86.00 | 43.00 | 44.00 |
| 10 | AQ9 (B) | 6.20 | 76.00 | 41.00 | 41.00 |
| 11 | AQ10 (A) | 6.00 | 47.00 | 29.00 | 29.00 |
| 12 | AQ10 (B) | 6.20 | 71.00 | 31.00 | 32.00 |
| 13 | AQ11 (A) | 6.60 | 79.00 | 33.00 | 33.00 |
| 14 | AQ11 (B) | 6.50 | 96.00 | 55.00 | 56.00 |
| 15 | AQ6 (A) | 7.80 | 69.00 | 18.00 | 21.00 |
| 16 | AQ6 (B) | 7.40 | 76.00 | 47.00 | 49.00 |
| 17 | AQ8 (A) | 7.00 | 57.00 | 49.00 | 49.00 |
| 18 | AQ8 (B) | 6.90 | 70.00 | 49.00 | 50.00 |
| 19 | AQ2 (A) | 7.70 | 66.00 | 15.00 | 18.00 |
| 20 | AQ2 (B) | 8.20 | 84.00 | 32.00 | 34.00 |

Note: tubes were unrecovered one each for AQ4 and AQ9

There are no specific national ambient air quality standards in Uzbekistan for BTEX compounds. Therefore, results have been assessed with reference to international health-based guidance, including:

WHO Global Air Quality Guidelines (2021) – which identify benzene as a carcinogenic pollutant for which no safe threshold can be established. WHO does not provide a guideline value for benzene but recommends minimising exposure as far as reasonably achievable.

IFC/WBG General Environmental, Health and Safety (EHS) Guidelines – which reference internationally recognised health-based values (e.g., WHO and other recognised authorities) for assessment of ambient air quality.

For screening purpose, health-based reference concentrations from internationally recognised US EPA IRIS has been used to compare the measured concentrations. These are not regulatory standards but represent conservative values for long-term exposure.

Typical chronic inhalation reference concentrations (RfCs) used for screening include:

- Benzene (non-carcinogenic effects): 30 µg/m³
- Toluene: 5,000 µg/m³
- Ethylbenzene: 1,000 µg/m³
- Xylene (mixed isomers): 100 µg/m³

The EU annual limit value of 5 µg/m³ represents a long-term exposure standard based on a full year of monitoring data and is therefore not directly comparable to short-duration passive sampling results.

Measured benzene concentrations ranged from 5.7 to 12.0 µg/m³ across monitoring locations. These concentrations are below the commonly applied chronic reference concentration of 30 µg/m³ for non-carcinogenic effects and are consistent with typical urban or roadside background environments influenced by traffic emissions. The remaining compounds were also well within the referenced standards.

**Round 2 Monitoring Results**

$SO_2$, $O_3$ and $NO_2$

The results of Round 2 monitoring are presented in Table 6-6. $SO_2$ concentrations ranged from 4.38 to 18.67 µg/m³, well below the national monthly MPC of 100 µg/m³. $NO_2$ concentrations ranged from 31.28 to 46.25 µg/m³, below the national monthly MPC of 50 µg/m³. $O_3$ concentrations remained within expected background levels. All monitored locations complied with the applicable national standards during Round 2. Compared to Round 1, $NO_2$ concentrations were lower and no exceedances were recorded.

**Table 6-8 $SO_2$, $O_3$, and $NO_2$ Concentrations on Round 1 Diffusion Tube Sampling**

| No | Location | Parameter | | | | | |
|---|---|---|---|---|---|---|---|
| | | MPC* | $SO_2$ (µg/m³) | MPC* | $O_3$ (µg/m³) | MPC* | $NO_2$ (µg/m³) |
| 1 | AQ1 (A) | 100 | 10.68 | - | 17.98 | 50 | 42.39 |
| 2 | AQ1 (B) | | 6.22 | | 18.90 | | 45.76 |
| 3 | AQ7 (A) | | 11.85 | | 19.24 | | 39.56 |
| 4 | AQ7 (B) | | 6.73 | | 15.69 | | 40.75 |
| 5 | AQ6 (A) | | 10.35 | | 18.38 | | 37.55 |
| 6 | AQ6 (B) | | 6.08 | | 14.71 | | 38.08 |
| 7 | AQ11 (A) | | 9.26 | | 16.47 | | 32.80 |
| 8 | AQ11 (B) | | 7.04 | | 20.92 | | 33.19 |

| No | Location | Parameter | | | | | |
|---|---|---|---|---|---|---|---|
| | | MPC* | $SO_2$ (µg/m$^3$) | MPC* | $O_3$ (µg/m$^3$) | MPC* | $NO_2$ (µg/m$^3$) |
| 9 | AQ4 (A) | | 7.25 | | 22.67 | | 32.54 |
| 10 | AQ4 (B) | | 11.49 | | 22.29 | | 34.81 |
| 11 | AQ10 (A) | | 8.48 | | 18.73 | | 32.71 |
| 12 | AQ10 (B) | | 4.38 | | 19.94 | | 31.28 |
| 13 | AQ5 (A) | | 12.35 | | 19.97 | | 35.61 |
| 14 | AQ5 (B) | | 7.59 | | 19.77 | | 32.19 |
| 15 | AQ8 (A) | | 11.58 | | 13.77 | | 37.73 |
| 16 | AQ8 (B) | | 10.41 | | 15.63 | | 38.07 |
| 17 | AQ9 (A) | | 13.42 | | 16.08 | | 36.26 |
| 18 | AQ9 (B) | | 12.66 | | 20.34 | | 36.10 |
| 19 | AQ3 (A) | | 18.39 | | 12.53 | | 42.68 |
| 20 | AQ3 (B) | | 16.96 | | 13.08 | | 44.60 |
| 21 | AQ2 (A) | | 18.67 | | 22.04 | | 45.45 |
| 22 | AQ2 (B) | | 16.01 | | 20.11 | | 46.25 |
| * = national standards, monthly, in µg/m3 | | | | | | | |

BTEX (Benzene, Toluene, Ethylbenzene and Xylene)

During round 2, Benzene concentrations ranged from 4.7 to 15.0 µg/m³. Toluene concentrations remained below 15 µg/m³ and both Ethylbenzene and xylene concentrations were typically below 5 µg/m³. See Table 6-9.

**Table 6-9 BTEX Concentration on Round 2 Diffusion Tube Sampling**

| No | Location | Parameters | | | |
|---|---|---|---|---|---|
| | | Benzene (µg/m3) | Toluene (µg/m3) | Ethylbenzene (µg/m3) | m/p-Xylene (µg/m3) |
| 1 | AQ1 (A) | 8.3 | 12.0 | 1.2 | 4.1 |
| 2 | AQ1 (B) | 8.7 | 14.0 | 1.5 | 4.7 |
| 3 | AQ7 (A) | 8.5 | 11.0 | 1.1 | 4.0 |
| 4 | AQ7 (B) | 15.0 | 11.0 | 1.1 | 3.8 |
| 5 | AQ6 (A) | 5.4 | 8.8 | 1.2 | 3.0 |
| 6 | AQ6 (B) | 5.3 | 8.3 | 0.8 | 2.6 |
| 7 | AQ11 (A) | 5.2 | 6.1 | 0.6 | 2.0 |
| 8 | AQ11 (B) | 5.0 | 5.3 | 0.5 | 1.7 |
| 9 | AQ4 (A) | 5.9 | 6.4 | 0.6 | 2.1 |
| 10 | AQ4 (B) | 4.9 | 5.4 | 0.5 | 1.8 |
| 11 | AQ10 (A) | 5.0 | 6.4 | 0.7 | 2.3 |
| 12 | AQ10 (B) | 4.8 | 6.4 | 0.7 | 2.3 |
| 13 | AQ5 (A) | 4.7 | 6.0 | 0.6 | 2.0 |
| 14 | AQ5 (B) | 4.9 | 8.1 | 0.9 | 2.5 |
| 15 | AQ9 (A) | 5.8 | 6.7 | 0.7 | 2.2 |
| 16 | AQ9 (B) | 5.5 | 6.4 | 0.6 | 2.1 |
| 17 | AQ3 (A) | 4.8 | 8.1 | 0.7 | 2.7 |
| 18 | AQ3 (B) | 8.8 | 8.5 | 0.8 | 3.0 |
| 19 | AQ2 (A) | 5.6 | 11.0 | 0.9 | 3.2 |
| 20 | AQ2 (B) | 5.4 | 9.9 | 0.7 | 2.6 |

| Note: tubes were unrecovered for AQ8 |
|---|

All measured concentrations remained significantly below internationally recognised health-based reference concentrations. Compared to Round 1, BTEX concentrations during Round 2 were generally lower, indicating variability likely associated with traffic intensity, meteorological conditions, and localised activity patterns.

The results indicate that, at the time of monitoring, ambient air quality in the Project area was generally compliant with applicable standards, with localised influences from traffic and surrounding anthropogenic activities.

## 6.5 Potential Impacts, Mitigation and Management

### 6.5.1 Construction Phase

During construction, local ambient air quality potentially affected by increased of pollution such as fugitive dust, especially on early phase of construction works, including site preparation, construction activities, and vehicle movement. Ambient air in the vicinity of the Project site may also be impacted from exhaust emissions from construction vehicles, equipment and temporary power generators. The typical air emissions resulting from these activities will typically include nitrogen oxides, sulphur dioxides, carbon monoxide, carbon dioxide, VOCs, particulates and BTEX. There is also potential source of VOCs from storage of fuels and chemicals, if it's poorly managed. Emissions of malodorous gases are also likely if sanitary wastes and decomposable organic solid wastes are not managed properly.

The main project construction activities that could result in potential changes in air quality are summarised in following table and discussed further later in this section.

**Table 6-10 Aspects and Impacts - Air Quality during Construction**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| Site preparation, earth-works and construction dust | Dust/Particulate generation | Increased suspended particles in air and dust deposition (250m from source – *UK IAQM*) | Human and ecological receptors in study area. |
| Vehicle movements on unpaved tracks | | | |
| Use of vehicles, mobile equipment and fuel driven plant | Emission of gases (e.g. NOx and particulates) | Increased concentration of gaseous pollutants (distinguishable from background within a distance of 200m from source – UK *DMRB*) | |
| Use of temporary sanitation facilities and wastewater containment structures | Odour from sanitary wastewater (only if poorly managed) | Expected at a maximum of 100m from source of site based temporary toilets/septic tanks. | |
| Storage of fuels, chemicals and other volatile substances | VOC emissions and odour (only if poorly managed) | Expected a maximum of 100m from source for small quantity and distributed storage during construction. | |

#### 6.5.1.1 Dust Generation

The main sources of dust and particulate emissions during construction will be:

- Excavations and earthworks, such as groundbreaking, cutting, filling and levelling;
- Vehicle movements on unpaved, or compacted surfaces; and
- Particulate dispersion from uncovered truckloads (e.g. while bringing in materials from off-site quarries.

**Dust Emissions from Site Preparation and Earth Works**

Baseline monitoring identified periodic exceedances of $PM_{10}$ and $PM_{2.5}$, primarily associated with ongoing local activities and temporary increases in emissions (e.g., agricultural operations and vehicle movements). These results indicate that background particulate matter concentrations in the Project area can already be elevated during certain conditions. As such, the receiving environment demonstrates an existing sensitivity to additional dust loading, particularly during dry and windy periods.

During the construction phase, site preparation activities including vegetation clearance, topsoil stripping, grading, excavation, backfilling and movement of construction vehicles have the potential to generate dust emissions. Nuisance dust (inert dust) is typically defined as particulate matter greater than 10 microns ($PM_{10}$–sized and larger fractions). These particles generally settle rapidly and close to the source; however, under certain meteorological conditions they may be transported further afield.

In addition to larger dust particles, construction activities can also generate finer particulate matter (including $PM_{10}$ and $PM_{2.5}$fractions), particularly from:

- Mechanical disturbance of dry soils;
- Vehicle movements on unpaved surfaces; and
- Handling and stockpiling of fine materials.

The potential for off-site dust impacts increases significantly during dry and windy conditions, when soil moisture content is low and wind speeds are sufficient to entrain and transport fine particles. Given the arid/seasonally dry characteristics of the area, dust generation potential is likely to be higher during prolonged dry periods. Strong winds aligned toward nearby receptors may increase the likelihood of short-term dust episodes.

According to the screening guidance of the UK Institute of Air Quality Management (IAQM), a detailed dust assessment is warranted where there is a human receptor within 350 m of the site boundary. There is only one residential receptor (H1) which falls within these criteria, located approximately 70 m south of the site boundary.

Given the proximity of H1 (within 100 m), there is potential for short-term dust-related impacts during site preparation and earthworks, particularly during periods of elevated wind speed and low soil moisture. Considering the baseline evidence of periodic particulate matter elevations in the wider area, the construction phase could result in temporary increases in ambient PM concentrations if not appropriately managed.

The magnitude of dust-related impacts will depend on:

- Soil type and moisture content;
- Frequency and scale of earthworks;
- Wind speed and direction;
- Duration of exposed soil surfaces;
- Effectiveness of dust suppression and site management measures.

Without mitigation, there is potential for temporary nuisance effects (e.g., dust deposition and irritation) at the nearest residential receptor and short-term increases in ambient $PM_{10}$ concentrations during peak activity periods. However, these impacts would be localised and reversible in nature.

Appropriate dust management measures (e.g., water suppression during dry/windy conditions, speed control on unpaved roads, prompt stabilisation of exposed surfaces, and covering of stockpiles) will be required to minimise the risk of exacerbating existing baseline particulate levels. Overall, the magnitude of potential dust related impacts is assessed to be of moderate magnitude, in particular to the nearby receptor H1.

**Dust Emissions & Particulate Emissions from Movement of Vehicles**

In addition to on-site vehicle activity, the construction phase will involve considerable truck movements associated with the import of soil fill materials from external quarries and other construction related traffic such as transport of materials and wastes, commuting of construction staff etc. These vehicles will utilise existing paved local roads to access the Project site.

Although paved roads typically generate less dust than unpaved surfaces, increased heavy goods vehicle (HGV) movements can result in particulate emissions through:

- Re-suspension of settled road dust (including track out) due to tyre movement and vehicle turbulence;
- Exhaust emissions (including $PM_{2.5}$ and $PM_{10}$ fractions);
- Loss of fine materials from inadequately covered truckloads;
- Spillage of soil or aggregate onto road surfaces, which may subsequently dry and become entrained by passing traffic.

If trucks are not properly sheeted or if loads are not adequately contained, wind action and vehicle-induced turbulence may result in dispersion of fine materials along transport routes. Such emissions have the potential to temporarily degrade local air quality in the immediate vicinity of haul routes and near the site entrance.

Baseline monitoring identified periodic elevations of particulate matter in the wider Project area under certain conditions. Consequently, additional particulate emissions from increased truck movements, particularly during dry and windy periods could result into short-term increases in ambient PM concentrations at sensitive receptors located close to haul routes.

In accordance with the UK Institute of Air Quality Management (IAQM) Guidance on the Assessment of Dust from Demolition and Construction, detailed assessment of vehicle movement impacts is generally required where human receptors are located within 50 m of construction traffic routes (up to 500 m from the site entrance).

At present, residential receptors H18 and H19 are known to be located within 50 m of one of the potential access routes. However, as the final haul routes have not yet been confirmed, the precise receptors that may be affected will be verified once the Traffic Management Plan is finalised.

The EPC Contractor will be required to prepare and implement a Traffic Management Plan (TMP) prior to commencement of construction. The TMP will:

- Identify final haul routes to and from external quarries;
- Confirm anticipated daily HGV movements and scheduling;
- Include measures to avoid or minimise routing through sensitive residential areas where practicable;
- Specify mandatory load covering (sheeting) requirements;

- Include wheel washing and vehicle cleaning procedures;
- Establish speed limits and driver code of conduct requirements;
- Provide procedures for inspection and prompt clean-up of any road spillages;
- Include monitoring and corrective action mechanisms where necessary.

In line with the IFC/WBG General Environmental, Health and Safety (EHS) Guidelines (Air Emissions and Ambient Air Quality), fugitive dust emissions from construction traffic will be managed through implementation of good industry practice and the measures set out in the TMP.

Given the temporary nature of construction activities, the use of paved roads, and the requirement for a robust TMP, potential impacts associated with construction traffic are expected to be localised and short-term.

In line with the IFC/WBG General Environmental, Health and Safety (EHS) Guidelines (Air Emissions and Ambient Air Quality), control of fugitive dust emissions from construction-related traffic should be achieved through the implementation of good site management practices. These include mandatory sheeting of trucks, prompt clean-up of any road spillage, wheel washing before exiting the site, speed restrictions, and, where necessary, dampening of heavily trafficked areas during dry conditions.

Considering that impacts would be localised to areas immediately adjacent to haul routes, temporary and associated with the construction period only, and reversible following completion of works, the pre-mitigation impact magnitude is assessed as minor to moderate (depending on traffic intensity and weather conditions), reducing to minor with implementation of appropriate mitigation measures.

#### 6.5.1.2 Gaseous Emissions

The main source of power during construction will be from the electric grid thereby reducing the amount of combustion emissions. Gaseous emissions during construction will primarily arise from the operation of vehicles, and construction equipment using liquid fuels. Emission quantities will depend on equipment type, usage duration, and maintenance condition.

The likely types and number of the main construction plant and equipment are listed in Table 2-6. The quantity of gaseous emissions from this equipment in addition to their numbers, will also depend on the number hours of operation and efficiency.

*Note: Details of the overall greenhouse gas (GHG) emissions during construction are provided in chapter 7 of this ESIA.*

The IAQM guidance (2014) states that:

"*Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed.*"

The magnitude of gaseous emission impacts is assessed as:

- Minor within the Project site, primarily affecting workers; and
- Negligible at nearby off-site receptors.

#### 6.5.1.3 Emissions of Volatile Organic Compounds (VOCs)

Small quantities of fuels, paints, solvents, and other volatile materials will be used during construction and stored within designated laydown areas. Construction-related VOC emissions are expected to be limited in volume, short-term, and localised.

With appropriate storage and handling measures in place, VOC emissions are not expected to materially affect ambient air quality beyond the immediate work areas. The magnitude of VOC-related impacts is therefore assessed as negligible negative for all receptors.

#### 6.5.1.4 Odour Emissions

Temporary sanitation facilities and wastewater holding systems will be provided for construction personnel. There is potential for localised odour generation if wastewater containment is inadequately managed. Any odour impacts are expected to be short-term, intermittent, and confined to the Project site or immediate surroundings.

During construction, temporary accommodation and sanitary facilities will be provided on-site. The potential issues related to odour could occur because of release of gases such as $H_2S$ when improper waste management happen (such as accumulation of biodegradable wastes). Sewage generated from temporary site sanitary facilities such as toilets and holding tanks can cause odour nuisance if not properly managed. Whilst exposure to odours can give rise to nuisance, particularly where human receptors may expect a high degree of amenity, this seldom represents a concern for physical health effects.

The magnitude of odour impacts is assessed as minor, primarily affecting on-site workers.

### 6.5.2 Impacts Assessment Summary – Air Quality during Construction

A summary of potential impacts from emissions of air pollutants during construction and their effects on identified receptors are presented in following table including recommended mitigation measures and residual impacts after the implementation of such measures.

**Table 6-11 Impact Assessment Summary – Air Quality during Construction**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Dust emissions as a result of site preparation and excavation works and movement of vehicles on unpaved surfaces | Moderate | Residential areas | High | Major | Minor |
| | | Commercial/industrial and agricultural areas | Medium | Moderate | Negligible |
| | | Project workers | Medium | Moderate | Negligible |
| Gaseous emissions from vehicle and plant exhaust | Minor | Project workers | Medium | Minor | Negligible |
| | Negligible | Residential areas | High | Minor | Negligible |
| | | Commercial areas | Medium | Minor | Negligible |
| Odour from waste and on-site sanitary facilities | Minor | Project workers | Medium | Minor | Negligible |
| Emissions of VOCs and other hazardous volatiles | Negligible | Residential areas | High | Minor | Negligible |

**Proposed Mitigation Measures**

Mitigation measures for dust control

- Any land grading, excavations and moving of uncovered waste/materials will be avoided during strong windy weather conditions and the area of exposed ground surfaces will be minimised at any given time.
- Daily review of weather updates, to give warning of likely strong winds to assist with the management of windblown dust.
- Enhanced dust control measures such as placing high barriers, in addition to vehicular speed control will be implemented during construction of the access road and water pipeline corridor considering the receptors located adjacent to and within 50m of the construction area. The EPC contractor to consider paving of access road in advance at locations close to these receptors (e.g., H1) to reduce fugitive dust from vehicle movements.
- Where sand and other dusty materials are transported to or from the site, trucks will not be overloaded and will be appropriately covered/sheeted to avoid loses en-route.
- Solid screens or barriers will be erected around dusty activities or the site boundary that are at least as a high as any stockpiles on site.
- Dust suppression attachments will be used on equipment where possible.
- Drop heights of will be reduced while handling materials including unloading.
- It will be ensured that bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|

- Cement and other fine powders will be sealed after use or put in bunded containers.
- Vehicle speed on all site roads and along the access road into the site, near the residential area will be restricted to 20 km/h.
- Where paved routes are not available vehicles routes will be clearly demarcated and appropriate signage displayed around the site.
- Internal roads inside the project site will be compacted as it reduces vehicular power consumption and fugitive dust emissions.
- Wetting down of any unpaved site roads in order to reduce dust generation.
- Provide project workers with full PPE kit including dust masks.
- No burning of wastes will be allowed onsite.
- Notice will be provided to the sensitive receptors near the site as early as possible (minimum one-week notice) if there will be activities that might generate a lot of dust.
- Any complaints received from nearby land users will be recorded and promptly addressed to avoid by taking corrective and preventive measures.
- A wheel cleaning facility such as rumble strips shall be used for construction vehicles leaving the site prior to accessing the paved public road network
- Dusty material stockpiles (i.e. any fine powders and sand) dust generating activities are to be located away from the site boundaries and be contained to avoid dust dispersion during storage or use.
- The EPC Contractor if installing a batching plant, will obtain all the necessary permits related to the construction and operation of the batching plant.
- Any exceptional incidents that cause dust and/or air emissions, either on- or off-site, will be recorded and the action taken to resolve the situation.

<u>Mitigations for gaseous emissions</u>

- Construction roads in the site will be designated and made clear to the drivers with signage for directions and speed limits placed all along the roads.
- Unnecessary usage of vehicles, plant and equipment will be minimized and unnecessary idling of vehicles and plant will be avoided.
- Deliveries of equipment/plant to the site will be efficiently managed to reduce the number of trips.
- Exhaust fumes and particulates emitted from trucks and vehicles will be minimised by ensuring the use of good condition vehicles (e.g. compliant to vehicle emission requirements).
- Low Sulphur diesel fuel will be used, if available, through the local supply chain.
- There will be pre-requisite requirements of site vehicles to ensure no black smoke before entering site and that any identified machinery or vehicles with black smoke will require maintenance and re-assessment before it is returned.
- Lorries and truck engines will be turned off while waiting on site to minimize gaseous emissions. Air-conditioned/heated shelters will be provided for drivers in designated waiting, loading and unloading areas to prevent drivers waiting in vehicles.

<u>Mitigations for odour emissions</u>

- Adequate and sufficient sanitary facilities for site workers must be provided.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Effective cleaning and maintenance of toilets to be undertaken to avoid odour dispersion and cleaning records/inspection sheets displayed in the toilets.<br>• All septic tanks must be sealed and fully functioning.<br>• Septic tanks must be operated and maintained according to manufacturer recommendations.<br>• Sanitary waste will be removed from site by licensed contractors and disposed in waste treatment facilities approved by the local government<br><br><u>Mitigations for VOC emissions</u><br>• Hazardous materials stored and used on site with potential gas emissions (e.g. Volatile Organic Compounds) will be located in well-ventilated, but secure low-risk areas, away from major transport routes and away from the site boundary.<br>• Volatile fuels and chemicals (including hazardous wastes) will be stored in sealed containers. On site storage of large quantities of volatile fuels will be avoided, equally prolonged exposure to direct sun and heat will be avoided.<br>• Fires and material burning will not be allowed on the Project site.<br>• Chemical storage areas will be purpose built and well maintained. A data log of all chemicals with Material Safety Data Sheet (MSDS)s will be provided at the storage facility within easy access. | | | | | |

### 6.5.3 Operational Phase

The identification of aspects associated with the operation of the Plant and the receptors that may be affected has been used to identify potential impacts associated with air emissions. These are presented in Table 6-12 and discussed further in this section.

**Table 6-12 Aspects and Impacts – Air Quality during Operation**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| Aircraft operations (including take-off, landing, taxiing, engine testing, auxiliary power units (APUs) and ground power units (GPUs) | Emissions of $NO_x$, CO, $SO_2$, particulates and VOCs | Within 1km of source. | Human and ecological receptors in study area. |
| Ground Support Vehicles | Emissions of $NO_x$, and Particulates | Within 200m of airport, | |
| Energy Generating Plant | Emission of NOx, and Particulates | Within 1km of source, | |
| Aircraft Fuel | Fugitive releases of HCs and VOCs from refuelling operations and storage tanks | Within 200m of source, | |
| Road vehicles using local roads | Emissions of $NO_x$, and Particulates | Within 200m of affected roads, | Human and ecological receptors within 200m of affected roads. |

#### 6.5.3.1 Emission from Airport Operation

**Overview of Air Dispersion Modelling**

Airport operations give rise to a range of air emission sources associated with aircraft activity, landside traffic, stationary combustion plant, and fuel handling operations as summarised in Table 6-12.

To quantify these potential impacts of operational emissions on local ambient air quality, detailed air dispersion modelling has been undertaken as part of this ESIA. The modelling incorporates:

- Anticipated aircraft movement data and operational profiles;
- Ground support equipment and vehicle activity;
- Available preliminary traffic data on access road;
- Energy plant emission characteristics;
- Meteorological data representative of the Project area; and
- Existing baseline air quality conditions established through field monitoring.

The modelling assessment predicts ground-level pollutant concentrations at identified human receptors locations within the study area. The results also allow identification of the spatial extent (zone of influence) of operational emissions and the receptors potentially affected.

A car parking area is planned within the central part of the Project site, in proximity to the Passenger Terminal Building. However, given its location within the site and separation from sensitive receptors, the potential impact on local air quality is expected to be negligible. On

this basis, emissions from the car park have been excluded from the detailed air quality assessment. Further assumptions and scope of the air dispersion modelling is discussed in the modelling report provided in appendix 3.

The following sections present the modelling results and provide an assessment of predicted impacts at identified sensitive receptors during airport operation.

The detailed modelling report is included in Appendix 3 which forms a supporting technical study to the ESIA, providing quantitative predictions of pollutant concentrations and comparing them against Uzbek national standards, WHO guidelines, and EU standards, as well as IFC/EBRD lender requirements, including the rule that project contributions should not exceed 25% of applicable air quality standards.

**Modelling Assumptions**

The assessment has been undertaken using a conservative set of modelling assumptions to ensure that predicted pollutant concentrations are unlikely to underestimate potential impacts. Rather than representing average airport operations, the modelling reflects a realistic worst-case operational scenario for the proposed airport.

The principal conservative assumptions adopted in the assessment includes the following:

- Inclusion of emissions from all aircraft landing, take-off, climb-out, approach and taxiing activities using ICAO aircraft emission factors;
- Use of five consecutive years (2020–2024) of hourly meteorological data to capture a wide range of atmospheric dispersion conditions, including periods of poor dispersion;
- Conservative assumptions regarding aircraft movement distribution and runway utilisation;
- Modelling of standby diesel generators as operating continuously over the relevant short-term averaging period for comparison with ambient air quality standards, notwithstanding that under normal operation these generators are intended only for routine monthly testing (approximately one hour per month) and emergency operation during interruptions to the national electricity supply.
- Conservative assumptions regarding aircraft movement distances during landing and take-off, which intentionally maximise emissions over sections of the runway closest to sensitive receptors.

Conversely, the assessment also reflects a number of design assumptions that are expected to reduce operational emissions compared with a conventional airport. These include the proposed use of predominantly electric ground support equipment and the provision of fixed electrical ground power for aircraft at stands, thereby minimising the need for auxiliary power unit operation.

Accordingly, the modelling does not represent a typical operational scenario but rather a conservative assessment intended to demonstrate compliance under credible worst-case operating conditions. In practice, actual operational emissions are expected to be lower than those predicted due to infrequent operation of standby generators, continued improvements in aircraft engine technology and the proposed use of low-emission airport ground support systems. The assessment therefore provides a robust basis for concluding that operational air quality impacts are expected to remain within the applicable national and international assessment criteria, with the exception of the limited area identified adjacent to the southern boundary of the airport where targeted mitigation and ongoing monitoring are proposed.

**Scope of Assessment**

The operational air quality assessment considered pollutant emissions across a 10 × 10 km modelling domain centred on the airport site. Impacts were evaluated at 30 identified sensitive receptors, comprising primarily residential dwellings located within surrounding settlements.

The pollutants assessed in the modelling were:

- Nitrogen dioxide ($NO_2$),
- Carbon monoxide (CO),
- Particulate Matter ($PM_{10}$ and $PM_{2.5}$), and
- Hydrocarbons, including benzene.

These pollutants were selected based on the nature of airport emission sources and their relevance to national and international ambient air quality standards. Sulphur is present in aircraft fuel; however it is at a relatively low level, typically 600 to 800ppm. Sulphur dioxide emissions have therefore been scoped out of this assessment.

Emission sources included aircraft operations (covering the full Landing and Take-Off (LTO) cycle and taxiing activities), standby diesel generators (tested monthly), and road traffic associated with the airport access road. Aircraft movements were assumed to be divided equally between Runway 1 and Runway 2. Runway direction (06 or 24) will be determined by prevailing wind conditions, with aircraft taking off and landing into the wind in accordance with standard aviation practice.

Air dispersion modelling was undertaken using ADMS-Airport v5.1, a recognised state-of-the-art dispersion model specifically developed for airport assessments. The modelling incorporated five years (2020–2024) of representative meteorological data, building downwash effects, detailed atmospheric chemistry for $NO_x$ to $NO_2$ conversion, and conservative assumptions regarding diesel generator operation (including continuous operation during short-term averaging periods to represent a worst-case scenario).

The modelling predicted ground-level pollutant concentrations at each receptor, which were then combined with baseline concentrations to derive Predicted Environmental Concentrations (PECs) for comparison with applicable national standards, WHO Air Quality Guidelines (including Interim Targets), EU limit values, and IFC/WBG guidance.

As outlined above, the operational air quality assessment focuses on those emission sources expected to make a material contribution to ambient pollutant concentrations at identified sensitive receptors. Certain airport related emission sources were therefore scoped out of the detailed assessment based on their anticipated negligible contribution.

Ground power will be provided at all contact stands, with aircraft using remote stands relying on auxiliary power units (APUs) or mobile ground power units (GPUs) only where required during turnaround. Emissions from APUs/GPUs at remote stands were excluded from the detailed assessment as their operation is intermittent and of relatively short duration, and these sources are located within the central airside area of the airport at substantial distances from the nearest sensitive receptors. In comparison, emissions from aircraft engines during landing, taxiing and take-off represent the dominant airport-related source of operational air emissions and were therefore the focus of the assessment.

Similarly, emissions associated with passenger vehicle movements within airport car parks were excluded from the detailed assessment. The principal car parking facilities are located within the central landside area of the airport, approximately 1 km from the nearest residential receptors. Given the low vehicle speeds, relatively low emission rates, dispersed nature of emissions and substantial separation distance to sensitive receptors, emissions from these activities are expected to be negligible in comparison with aircraft operations and traffic on the surrounding road network. Accordingly, these sources are not expected to materially influence

ambient pollutant concentrations at nearby sensitive receptors or the conclusions of the operational air quality assessment.

**Significance Criteria**

There are no local planning policies that provide criteria for acceptable impacts from development projects in Uzbekistan. The IFC guidance states that 'emissions from a single project should not contribute more than 25% of the applicable ambient air quality standards to allow additional, future sustainable development in the same airshed'.

In the absence of specific significance criteria, this has been used to determine the significance of the emissions from the proposed airport in the local area.

**Predicted Impacts**

Nitrogen Dioxide ($NO_2$)

Modelling results indicate that annual mean $NO_2$ concentrations comply with applicable standards at all receptors except one location (H1), situated within the small settlement to the south of the runway. At this receptor, the Predicted Environmental Concentration (PEC) is 43.0 µg/m³, slightly exceeding the 40 µg/m³ annual mean standard (National, WHO Interim Target 1 and EU).
The Contour Plot illustrated in Figure 6-15 shows the area of exceedance within the blue line shown on the plan.

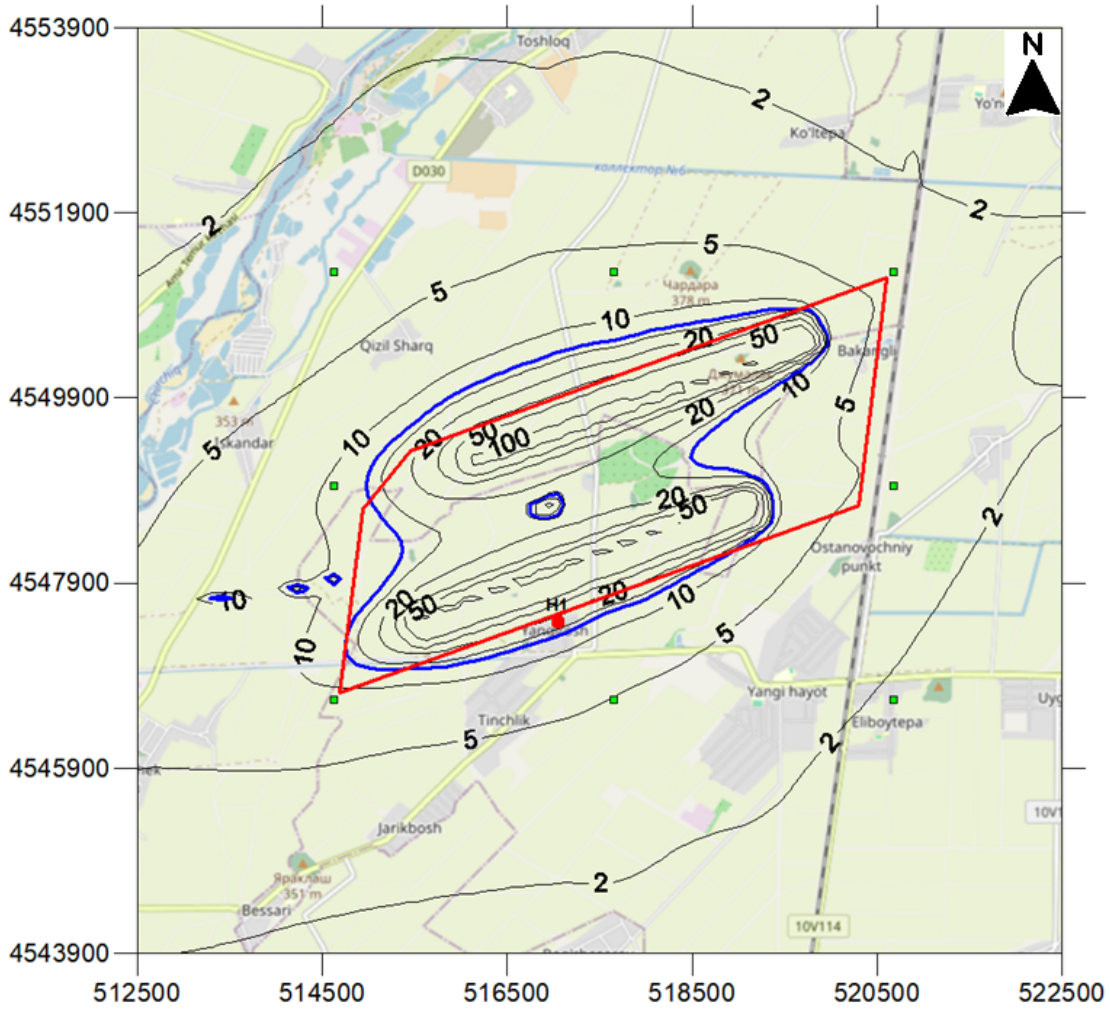



**Figure 6-15 Contour Plot illustrating the Maximum Annual Mean $NO_2$ (µg/m3)**

This exceedance is highly localised and influenced by conservative modelling assumptions, including equal runway usage and aircraft activity occurring near the receptor under worst-case meteorological conditions. At all other receptors, the airport contribution to annual $NO_2$ concentrations is well below 25% of the applicable standards and is therefore considered insignificant under IFC criteria.

Short-term $NO_2$ concentrations (1-hour, 24-hour and 15-minute averaging periods), including those associated with standby diesel generator operation under worst-case assumptions, are predicted to remain below 25% of applicable standards at all receptors and are therefore not significant. It is also noted that background $NO_2$ concentrations are expected to improve over time due to increasing electrification of regional vehicle fleets and progressive tightening of vehicle emission standards, suggesting that future operational impacts may be lower than those predicted.

Particulate Matter ($PM_{10}$ and $PM_{2.5}$)

For $PM_{10}$, no exceedances of the National Standard or WHO Interim Targets 1 and 2 are predicted as a result of airport operations. Where exceedances of stricter WHO guideline levels (Targets 3 and 4) occur, these are attributable to existing baseline conditions rather than airport contributions. At all receptors, the airport contribution to $PM_{10}$ concentrations is below 25% of the applicable standards and is therefore considered insignificant.

Similarly, no exceedances of the National Standard for $PM_{2.5}$ are attributable to the airport. Although background $PM_{2.5}$ concentrations exceed certain WHO guideline values and EU standards in parts of the study area, the airport's contribution is extremely small (typically less than 1% of the relevant standard). As such, operational impacts on fine particulate concentrations are assessed as negligible.

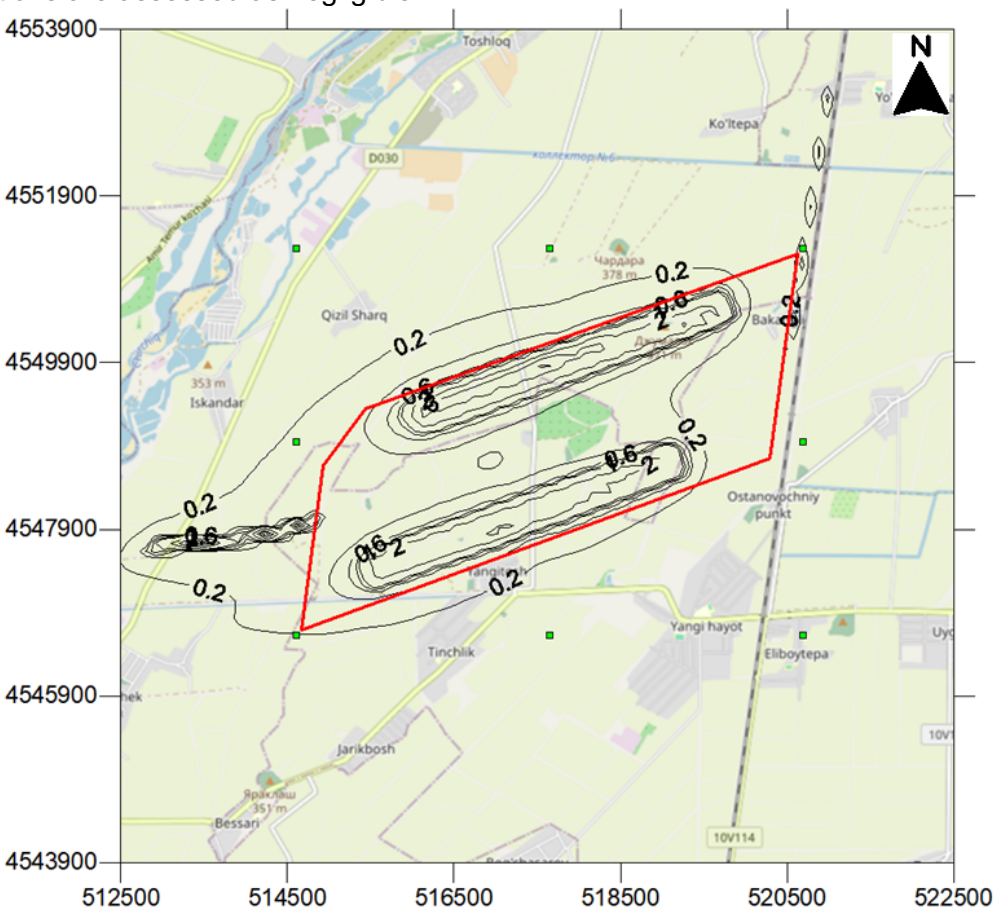



**Figure 6-16 Contour Plot illustrating the Maximum Annual Mean $PM_{10}$ (µg/m3)**

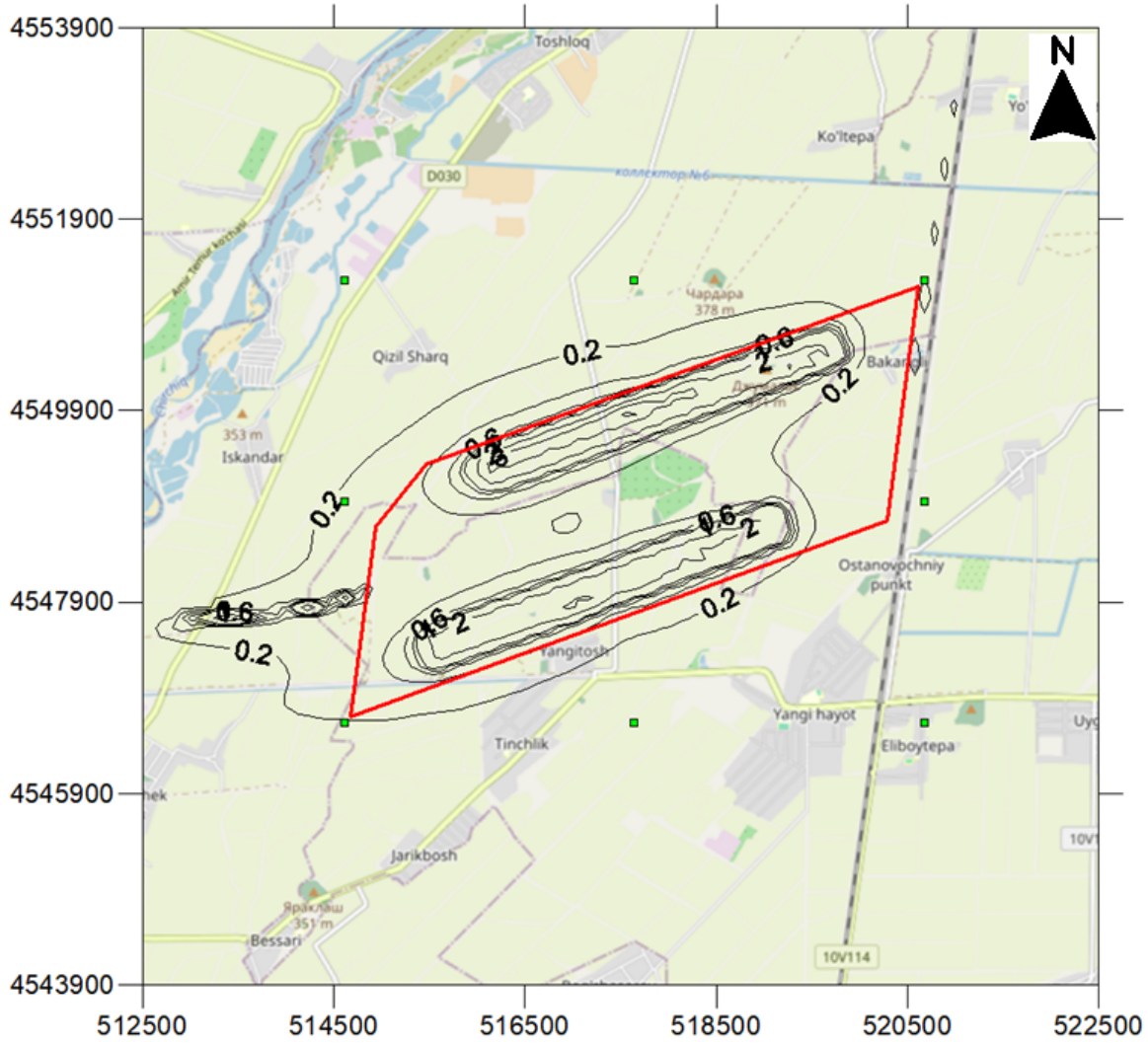



**Figure 6-17 Contour Plot illustrating the Maximum Annual Mean $PM_{2.5}$ (µg/m$^3$)**

Carbon Monoxide (CO)

Predicted CO concentrations comply with National, WHO and EU standards at all receptors. Even under conservative assumptions for generator operation, airport contributions remain well below 25% of applicable standards. Operational impacts for CO are therefore assessed as insignificant.

Hydrocarbons (Including Benzene)

The airport's contribution to benzene concentrations is predicted to be less than 25% of the applicable EU limit value at all receptors. While total concentrations at some locations exceed the EU benzene limit value, this is driven by existing baseline conditions rather than airport emissions. The airport's incremental contribution is minor and does not materially alter existing air quality conditions.

Overall Significance of Impacts

Across the modelling domain, the proposed airport is predicted to have an insignificant air quality impact at almost all receptors when assessed against IFC/WBG criteria.

A single localised exceedance of the applicable annual mean $NO_2$ assessment criterion is predicted at receptor H1, a small community located approximately 70 m south of the Project site boundary. The predicted annual mean concentration is 43 µg/m³ compared with the applicable assessment criterion of 40 µg/m³. This exceedance is marginal, confined to a single

receptor immediately adjacent to the runway, and no exceedances are predicted at any other identified receptor. All predicted short-term concentrations of $NO_2$, CO, $PM_{10}$ and $PM_{2.5}$ remain below the applicable assessment criteria.

The predicted exceedance at H1 reflects the receptor's proximity to the primary aircraft landing and take-off emission sources rather than a widespread deterioration in ambient air quality. The assessment methodology adopts conservative assumptions regarding aircraft operational activities, including aircraft movement patterns, landing and take-off emissions, and atmospheric dispersion, which are intended to ensure that potential impacts are not underestimated. Consequently, the predicted concentrations are considered to represent a conservative assessment of the potential operational air quality impacts.

The exceedance is limited in magnitude (approximately 3 µg/m³ above the applicable annual mean criterion) and is highly localised, with pollutant concentrations reducing rapidly with increasing distance from the runway environment. The modelling therefore indicates that the potential effect is confined to the receptor located closest to the airport, rather than representing a broader impact on surrounding communities.

As outlined earlier, the assessment adopted conservative modelling assumptions regarding aircraft operational activities, including the spatial extent of landing and take-off emissions, which are likely to overestimate ground-level concentrations at receptor H1. Nevertheless, the current assessment predicts a marginal exceedance of the annual mean criterion under these conservative assumptions.

From the commencement of airport operations, the Airport Operator will implement an Air Quality Management Programme incorporating source-level emission reduction measures, including progressive electrification of airside vehicles and ground support equipment, provision of fixed electrical ground power to minimise aircraft auxiliary power unit use, optimisation of aircraft ground movements and taxiing, minimisation of engine idling, and continued fleet modernisation through engagement with airlines. These measures are expected to progressively reduce operational emissions over time.

The Air Quality Management Programme also includes operational ambient air quality monitoring to verify actual air quality performance and confirm the effectiveness of the implemented mitigation measures. Monitoring results will be periodically reviewed against the applicable assessment criteria. Where monitoring identifies concentrations approaching or exceeding the applicable annual mean criterion, the Airport Operator will implement additional operational mitigation measures through an adaptive management process to reduce emissions and achieve compliance with the applicable air quality standard.

Given the conservative nature of the modelling, the limited magnitude and spatial extent of the predicted exceedance, and the commitment to implement operational mitigation measures supported by performance-based monitoring and adaptive management, the residual operational air quality impact is considered to be minor (not significant) and manageable.

All short-term pollutant concentrations ($NO_2$, CO, $PM_{10}$ and $PM_{2.5}$) remain well below applicable standards.
Most exceedances of WHO and EU guideline values identified within the study area are associated with existing regional background concentrations rather than airport contributions.
The modelling approach adopted for this assessment is intentionally conservative. It incorporates worst-case assumptions for runway usage, generator operation, and atmospheric chemistry. As a result, actual operational impacts are expected to be equal to or lower than those predicted.
The airport's operational contributions to $NO_2$, $PM_{10}$, $PM_{2.5}$, CO and hydrocarbons are predominantly minor and compliant with relevant national and international standards.
Overall, the proposed airport's operational impact on ambient air quality is assessed as low and acceptable in accordance with international ESIA significance criteria, including the IFC/WBG 25% contribution threshold.

### 6.5.4 Impacts Assessment Summary – Air Quality during Operation

A summary of potential impacts from emissions of air pollutants during operation and their effects on identified receptors are presented in following table including recommended mitigation measures and residual impacts after implementation of mitigations measures.

**Table 6-13 Impact Assessment Summary – Air Quality during Operation**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Emissions of gaseous air pollutants (aircraft operations, ground support vehicles, fuel storage, energy plants): $NO_2$, $PM_{10}$, $PM_{2.5}$, CO, $SO_2$ and VOCs | Moderate *(localised annual $NO_2$ exceedance under conservative assumptions)* | Residential receptor H1 | High | Moderate | Minor |
| | Negligible | Other nearby residential receptors within AoI | High | Minor | Negligible |
| | Negligible | Commercial / Industrial and agricultural land users | Medium | Minor | Negligible |
| | Negligible | Project Workers | Medium | Minor | Negligible |
| Emissions from airport related road traffic on local roads | Negligible | Residential receptors along local roads | High | Minor | Negligible |
| | Negligible | Commercial / Industrial and agricultural land users | Medium | Minor | Negligible |

**Proposed Mitigation Measures**

The airport operator (i.e., TAA) will implement a comprehensive Air Quality Management Programme as part of the Operational Environmental and Social Management System (ESMS). The programme will incorporate the following measures.

Mitigations for gaseous emissions

To minimise emissions associated with aircraft movements, ground handling and stationary sources, the airport operator will:

- Optimise runway allocation and flight procedures, in coordination with air traffic control authorities, to minimise taxiing distances and engine running times where operationally feasible and consistent with aviation safety requirements.
- Implement stand management procedures to minimise aircraft Auxiliary Power Unit (APU) operating times.
- Establish and enforce anti-idling requirements for ground support vehicles (GSVs) and service equipment.
- Undertake progressive transition of all ground support equipment to lower-emission technologies, including electric or hybrid units, where technically and economically feasible.
- Make provisions for using Sustainable/Synthetic Aviation Fuel (SAF) in the future.
- Require that all contractors operating airside comply with airport environmental requirements, including emissions performance standards for equipment and vehicles.
- Implement a preventive maintenance programme for all airport-owned vehicles, plant and equipment to ensure optimal combustion efficiency and minimise exhaust emissions.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Conduct periodic inspections to ensure that vehicles and equipment exhibiting visible black smoke or excessive exhaust emissions are removed from service until repaired and compliant.<br>• Fuel storage and handling facilities will be designed and operated in accordance with international standards to minimise fugitive hydrocarbon emissions.<br><u>Mitigations for emissions from back up diesel generator</u><br>Emergency diesel generators will be operated strictly for emergency use and scheduled testing, in accordance with manufacturer and regulatory requirements. To minimise emissions:<br>• Generators will use ultra-low sulphur diesel fuel.<br>• Stack heights will be designed to ensure adequate dispersion, with stacks extending at least 3 metres above the generator housing and in accordance with dispersion modelling assumptions.<br>• Preventive maintenance will be undertaken in accordance with manufacturer specifications to ensure efficient combustion.<br>• Generator testing will be scheduled, during daytime hours and outside periods of adverse meteorological conditions to reduce potential short-term exposure at nearby receptors.<br><br><u>Mitigations for emissions of operational road traffic</u><br>To manage emissions from airport-related traffic on access roads and within the airport:<br>• A Traffic Management Plan will be implemented to optimise vehicle routing and reduce congestion.<br>• Anti-idling requirements will be enforced for taxis, buses and service vehicles within airport premises.<br>• Airport fleet vehicles will progressively transition toward low-emission or electric vehicles.<br>• All airport-operated vehicles will be subject to routine inspection and maintenance programmes, with documented records maintained.<br>• Vehicles emitting excessive smoke or failing emissions checks will be removed from service until rectified.<br>• Compliance with national vehicle emission standards will be mandatory for all contracted service providers operating within the airport boundary. | | | | | |

## 6.6 Monitoring

The EPC Contractor and the Project Company will undertake air quality monitoring during the construction, commissioning and operational phases of the Project respectively and these are outlined in Table 6-14. The final monitoring methodology with specific monitoring details (i.e. locations, frequencies, durations, parameters etc.) will be developed in the specific 'Environmental Monitoring Plan'.

**Table 6-14 Monitoring for Air Quality**

| Monitoring | Parameters | Frequency & Duration | Location |
|---|---|---|---|
| **Construction** | | | |
| Dust Generation & Dispersion | Visual dust emissions | Daily visual inspections during active earthworks and vehicle movements.<br>Quantitative monitoring (e.g., portable $PM_{10}$ monitor) to be undertaken monthly and on occasions if excessive dust is observed, during prolonged dry/windy conditions, or in response to complaints. | At 4 locations just outside Project boundary and at receptor H1 |
| Construction traffic emissions | Visible exhaust emissions (black smoke), vehicle condition | Daily visual inspection of active vehicles and plant.<br>Verification of valid annual inspection certificates prior to site entry. | All onsite contractor vehicles and access to Project site. |
| Construction plant and equipment | Exhaust emissions performance | Pre-mobilisation inspection and routine spot checks during construction. | All non-road machinery operating within Project site. |
| Fuel Storage, Hazardous Materials & Sanitary Facilities | Odour, visible leak | Daily inspection of fuel storage, refuelling areas and hazardous material stores. | Fuel storage areas, refuelling zones, laydown areas, contractor camps and sanitary facilities. |
| **Operation** | | | |
| Aircraft and ground operations emissions | Compliance with APU limits, anti-idling compliance, ground power usage | Continuous operational control through airport procedures.<br>Periodic compliance audits (at least annually). | Airside apron areas, stands, and taxiways. |
| Road and ground support vehicle emissions | Road and ground support vehicle emissions | Routine preventive maintenance in accordance with manufacturer schedules.<br>Annual inspection and certification of airport-operated fleet.<br>Spot checks for visible smoke. | All airport-operated and contractor vehicles within airport boundary; access roads |
| Ambient air quality verification monitoring | $NO_2$, $PM_{10}$, $PM_{2.5}$, BTEX | One-week continuous monitoring undertaken initially on a quarterly basis during the first year of operation. Frequency to be reviewed based on results. | Close to receptor H1 |

# 7.0 Climate Change Impacts and Adaptation

A detailed Climate Change Impact Assessment (CCIA) has been prepared for the new Tashkent International Airport and is provided in Appendix 4. The appendix contains the complete methodological framework, climate data analysis, greenhouse gas (GHG) accounting, climate-risk assessment, and supporting technical tables and figures. The following section includes a concise summary of that assessment.

## 7.1 Applicable Requirements

### 7.1.1 National Requirements

The ratification of the Paris Climate Agreement committed Uzbekistan to transitioning to a green economy, and adoption of the following normative documents:

- Decree of the President of the Republic of Uzbekistan. № PD-4477"On approval of the Strategy on transition of the Republic of Uzbekistan to the "green" economy for the period 2019-2030"(2019, as amended in 2024)
- Decree of the President of the Republic of Uzbekistan, № PD-5863 “On approval of the Concept of environmental protection of the Republic of Uzbekistan until 2030 (2019, as amended in 2024)
- In 2021, the Republic of Uzbekistan updated its nationally determined contribution (NDC) and aims to reduce specific greenhouse gas emissions per unit of GDP by 35% by 2030 as compared to the level of 2010. Uzbekistan’s NDC also includes adaptation commitments such as enhancing the resilience of strategic infrastructure and developing early warning systems for hydro-meteorological hazards.

### 7.1.2 Lender Requirements

**IFC Performance Standards**

The IFC Performance Standards acknowledge that climate change is a topic that can be addressed across multiple Performance Standards and there is an expectation under IFC PS1 for relevant risks associated with climate change to be identified.

With regard to ‘Greenhouse Gases’, IFC PS3 requires consideration of alternatives and for Project’s to implement, ‘*technically and financially feasible and cost-effective options to reduce project-related GHG emissions during the design and operation of the project.’*

**EBRD - Paris Agreement Alignment**

The Project will be assessed for alignment with the climate-related requirements of EBRD guided by EBRD’s commitment to align its investments with the objectives of the Paris Agreement, the Project will be evaluated against the Methodology to Determine the Paris Agreement Alignment of EBRD Investments (March 2024), as applicable.

**Equator Principles IV (Good Practice)**

Equator Principles IV establishes that impacts to climate should be avoided where possible, and in support of the 2016 Paris Agreement recognises that EPFIs have a role to play in improving the availability of climate-related information.

Factors including climate change are required to be incorporated into the Project Review and Categorisation (EP1), while a key element of EP IV (under EP2 for Environmental and Social Assessment) is that an assessment of climate change risks is required in an ESIA.

For projects that have Scope 1 & 2 GHG emissions of over 100,000 tonnes of $CO_2$ equivalent per annum, there are also other requirements linked to alternative analysis and client annual reporting on GHG emissions.

**European Commission Climate Proofing of Infrastructure**

The EC Technical Guidance on Climate Proofing of Infrastructure covers the programming period 2021-2027. In line with the Paris Agreement and EU climate objectives, It follows the principle 'energy efficiency first' defined in Article 2(18) of Regulation (EU) 2018/1999, and the principle 'do no significant harm' in Regulation (EU) 2020/852 (Taxonomy Regulation). It integrates climate proofing with Environmental Impact Assessment (EIA).

## 7.2 Climate Change – National and Regional Context

Uzbekistan joined the United Nations Framework Convention on Climate Change (UNFCCC) on June 20, 1993. Uzbekistan prepared and submitted three National Communications, the First Biennial Update Report (2021) and the Inventory Reports for 1990-2017 in accordance with the UNFCCC requirements and guidelines.

The Fourth National Communication is currently being prepared. Uzbekistan signed the Paris Agreement by providing the Intended Nationally Determined Contribution1 to the UNFCCC Secretariat on April 19, 2017.The country ratified the Paris Agreement on October 2, 2018 (Law of the Republic of Uzbekistan No. 491), and thus the INDC became the country's First NDC (NDC1). In accordance with the NDC1, in the long-term perspective until 2030, the Republic of Uzbekistan seeks to strengthen measures and actions to combat climate change in order to reduce by 2030 specific greenhouse gas emissions per unit of GDP by 10% from the level of 2010.

Decision 1/CP.21 requests to update national contributions by 2020 and every five years thereafter, in accordance with Article 4, paragraph 9, of the Paris Agreement. Uzbekistan shares the view of the world community on the need to make every effort to prevent global climate change. Based on the capacity and responsibility and taking into account the country's transition to a resource-efficient "green" development model, which is based on decarbonization of the economy and the ongoing socio-economic reforms in the country, Uzbekistan has updated and strengthened its commitments (NDC) under the Paris Agreement for the period until 2030.

## 7.3 Climate Baseline and Projections

### 7.3.1 Historical Trends in Temperature

Uzbekistan has an arid and continental climate with large temporal and spatial variations in temperature and precipitation. Flat topography dominates 79% of the country's area in the form of semi-desert, steppes or desert zones, and the remaining south-eastern areas have a continental climate, which include big cities like Tashkent and Samarkand. For the period of 1991 – 2020, Uzbekistan has summers that are long, hot, and dry with an average monthly temperature of 27.2°C in July, when daily maximum can reach 35°C in cities. Average monthly temperatures in winter range from −1°C to −3°C (Climate Risk Country Profile, World Bank and Asian Development Bank). From 1950 to 2020, average temperatures of Uzbekistan have increased by 2.9°C, while precipitation trend is not statistically significant (Country Climate and Development Report, World Bank).

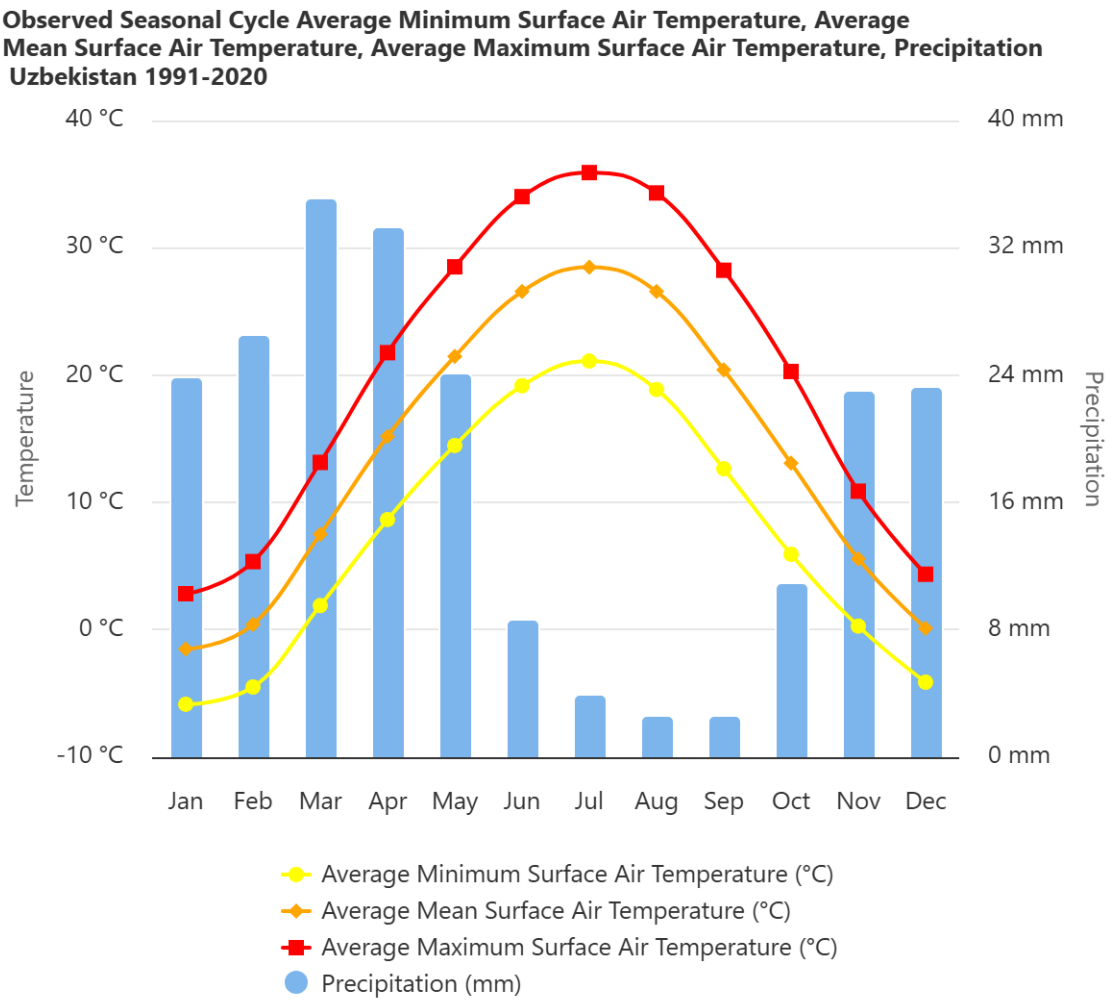



**Figure 7-1 Average Temperatures in Uzbekistan**

### 7.3.2 Projections for Temperature

**Future Trends**

According to the World Bank Country Climate and Development Report in 2023, temperatures in Uzbekistan are expected to rise by another 1.21°C–1.94°C by the end of the century. Increased temperatures can lead to other disasters like mudslides, glacier melt, at the same time worsening water scarcity. Heavy rainfall frequencies are also projected to increase, which in turn would increase flood risks.

The following map shows climate risk scores across Uzbekistan projected for 2030. The score is the average of four indicators: anomalies in the standardized precipitation evapotranspiration index, maximum rainfall depth in one day, average annual rainfall depth, and anomalies in the growing season length. The project site falls within an area with a low climate risk score.

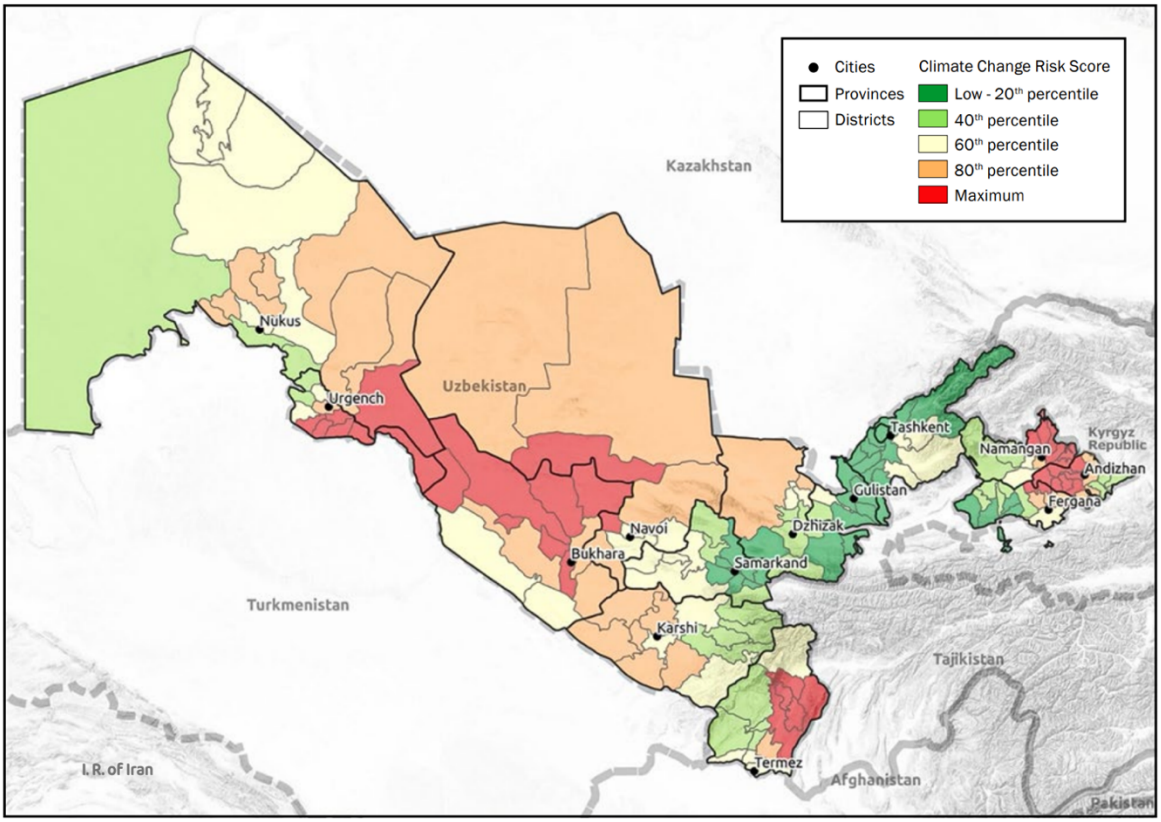



**Figure 7-2 Projected Climate Risk Scores for Uzbekistan**

### 7.3.3 Historical Trends in Precipitation

In contrast to the clear trend in average temperatures, average annual precipitation has not shown statistically significant changes in Uzbekistan in recent decades. A slight decrease in average annual precipitation was observed between 1950 and 2013. Observations from the Tien Shan and Gissar-Alai mountain ranges exhibit some variation between seasons, with a slight increase in winter months (December to February) being offset by slight decreases in other months of the year. El Niño Southern Oscillation (ENSO) has a strong influence over multi-year dry and wet climate variability.

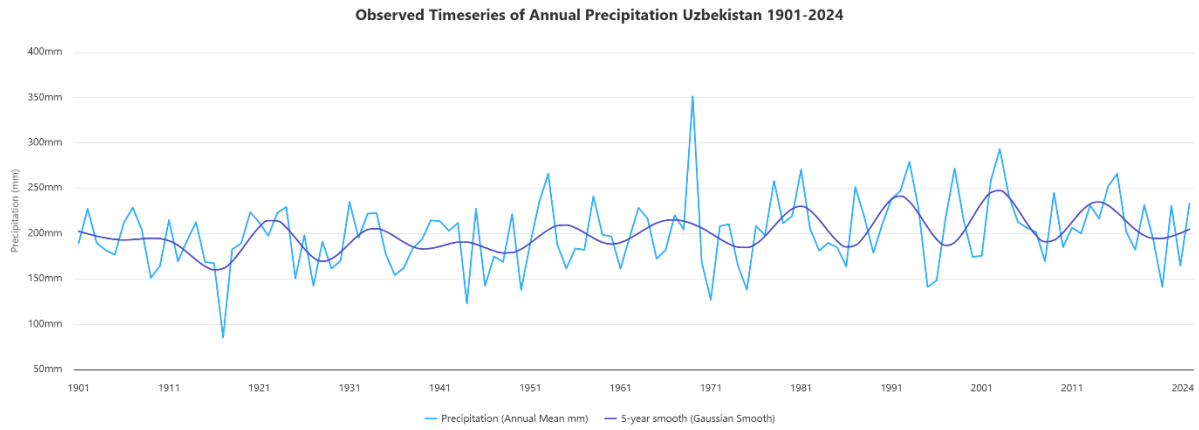



**Figure 7-3 Annual Trend of Precipitation of Uzbekistan (1901 – 2024)**

### 7.3.4 Projections for Precipitation

According to averaged outputs averaged from 8 Global Climate Models with use of model MAGIC/SCENGEN5.3 (Climate Scenario Generator for Vulnerability and Adaptation Assessments), climate change scenarios for the whole of Uzbekistan and for upper watersheds of Syrdarya and Amudarya river basins indicate the probability of heat waves in the future will increase along with retention of cold waves due to climate warming. Precipitation changes are more uncertain than temperature changes. The medium-impact scenario indicates an increase in precipitation of about 48mm/yr in the desert and steppe zones, an increase of 42mm/yr in the piedmont zone, and a decrease of about 10mm/yr in the highlands zone.

Despite an overall increase in precipitation, aridity is also expected to increase across the entire country, most notably in the western parts of Uzbekistan. In addition, the situation with water scarcity in Uzbekistan might significantly worsen due to the expected reduction of existing water resources (projections suggest that the water flow will potentially decrease by 2–5% in the Syr Darya River Basin and by 10–15% in the Amu Darya River Basin by 2050). In addition to reduction in water resources, climate change will increase current competition over water resources because the demand for irrigation water will increase due to increasing temperatures. Evaluation of water use by use of WEAP (Water Evaluation and Planning System) model also show deficiency in water resources will be increased considerably as a result of climate change. By the 2040s even with increase in runoff of the Amudarya and Syrdarya rivers, the total deficiency of water for irrigation in Uzbekistan may be 8.0% with materialisation of the low impact scenario, 15.4% under medium impact and 33.5% under the high impact scenario (Third National Communication for the Republic of Uzbekistan, 2016).

## 7.4 Climate Change Impacts Assessment

### 7.4.1 Overview

As outlined earlier in this report, a comprehensive Climate Change Impact Assessment (CCIA) has been undertaken for the Project. The full technical assessment, including datasets, climate modelling outputs, GHG calculations, and detailed adaptation analysis, is provided in Appendix 4. The summary below presents the key findings relevant for the ESIA.

The CCIA evaluates both (i) the impact of the Project on climate change, through its operational and aviation-related GHG emissions, and (ii) the impact of climate change on the Project, considering historical and projected climate variables and associated physical hazards. The assessment aligns with:

- European Commission Climate-Proofing Guidance (2021–2027)
- European Investment Bank (EIB) Project Carbon Footprint Methodology
- IFC Performance Standards, Equator Principles (EP4), and TCFD recommendations

### 7.4.2 Impact of the Project on Climate Change

#### 7.4.2.1 Greenhouse Gas Emissions

**Construction and Operational Emissions**

The Project's GHG emissions were quantified for both the construction and operational phases. Construction-phase emissions are estimated at 14,514 $tCO_2e$ from mobile diesel combustion and 8,990 $tCO_2e$ from purchased electricity over the approximately 3.5-year construction period. Also see Table 7-1 and Table 7-2.

Operational emissions were assessed for an annual passenger capacity of 20 million, resulting in 58,800 $tCO_2e$/year for Scope 1 and 2 sources, including fuel combustion from ground support equipment and purchased electricity (see Table 7-3). Additional Scope 3 emissions from aircraft landing and take-off (LTO) cycles are significantly higher, with an estimated 972,122 $tCO_2e$/year, reflecting the dominance of aviation emissions in airport carbon footprints (see Table 7-4).

**Table 7-1 Calculated Emissions from Fossil Fuel Consumption during Construction**

| Description | Units | Value |
|---|---|---|
| Total fossil fuel consumption [a] | L | 5,375,552 |
| Default emission factor [b] | $kgCO_2e/kWh$ | 2.7 |
| Conversion | $tCO_2e/kgCO_2e$ | 0.001 |
| **Total GHG emissions** | **$tCO_2e$** | **14,514** |
| **Sources:**<br>[a]Vision Invest.<br>[b]EIB (2023). *EIB Project Carbon Footprint Methodologies* (Link) [accessed on 04 February 2026]. | | |

**Table 7-2 Calculated Emissions from Purchased Electricity during Construction**

| Description | Units | Value |
|---|---|---|
| Total electricity consumption [a] | kWh | 19,250,000 |
| Country-specific grid emission factor [b] | $gCO_2e/kWh$ | 467 |
| Conversion | $tCO_2e/gCO_2e$ | 0.000001 |
| **Total GHG emissions** | **$tCO_2e$** | **8,990** |
| **Sources:**<br>[a]Vision Invest.<br>[b]EIB (2023). *EIB Project Carbon Footprint Methodologies* (Link) [accessed on 04 February 2026]. | | |

**Table 7-3 Calculated Scope 1 and Scope 2 GHG Emissions during Operation**

| Description | Units | Value |
|---|---|---|
| Total number of passengers [a] | Pax/year | 20,000,000 |
| Average emissions per passenger [b] | $kgCO_2e/pax$ | 2.94 |
| Conversion | $tCO_2e/kgCO_2e$ | 0.001 |
| **Annual GHG emissions** | **$tCO_2e$/year** | **58,800** |
| **Sources:**<br>[a]5 Capitals (2025) *Tashkent New Gateway Hub International Airport Uzbekistan: Environmental & Social Impact Assessment: Scoping Report*. | | |

| Description | Units | Value |
|---|---|---|
| [b]Airport Carbon Accreditation (2024) *Annual Report 2023-2024* (Link) [accessed on 04 February 2026]. | | |

**Table 7-4 Calculated Scope 3 GHG Emissions for the LTO Cycle**

| Description | Units | Value |
|---|---|---|
| Average number of annual passengers [a] | Pax/year | 20,000,000 |
| Avg. number of annual flights (for 20 million pax)[b] | flights/year | 125,984 |
| Proportion of domestic flights [c] | % | 1% |
| Avg. number of annual of domestic flights | flights/year | 1,260 |
| Avg. fuel consumption of domestic flights [d] | kg/flight | 800 |
| Conversion | t/kg | 0.001 |
| Annual fuel consumption of domestic flights | t/year | 1,008 |
| $CO_2$ emission factor [e] | $kgCO_2$/LTO | 3,104 |
| $N_2O$ emission factor [e] | $kgN_2O$/LTO | 0 |
| $CH_4$ emission factor [e] | $kgCH_4$/LTO | 0 |
| $CO_2$ GWP [e] | | 1 |
| $N_2O$ GWP [e] | | 28 |
| $CH_4$ GWP [e] | | 265 |
| Conversion | $tCO_2e/kgCO_2e$ | 0.001 |
| **Annual GHG emissions from domestic flights** | **$tCO_2e$** | **3,914** |
| Proportion of international flights | % | 99% |
| Avg. number of annual of international flights | flights/year | 124,724 |
| Avg. fuel consumption of international flight | kg/flight | 2,500 |
| Conversion | t/kg | 0.001 |
| Annual fuel consumption of international flights [d] | t/year | 311,810 |
| $CO_2$ emission factor [e] | $kgCO_2$/LTO | 3,104 |
| $N_2O$ emission factor [e] | $kgN_2O$/LTO | 0 |
| $CH_4$ emission factor [e] | $kgCH_4$/LTO | 0 |
| $CO_2$ GWP [e] | | 1 |
| $N_2O$ GWP [e] | | 28 |
| $CH_4$ GWP [e] | | 265 |
| Conversion | $tCO_2e/kgCO_2e$ | 0.001 |
| **Annual GHG emissions from international flights** | **$tCO_2e$** | **968,208** |
| **Annual GHG emissions** | **$tCO_2e$/year** | **972,122** |

**Sources:**
[a]5 Capitals (2025) *Tashkent New Gateway Hub International Airport Uzbekistan: Environmental & Social Impact Assessment: Scoping Report*.
[b]Recalculated for 20 million passengers.
[c]Based on flight data from the existing Tashkent International Airport for the period 1 January to 21 December 2025.
[d]IPCC (2006). *Aircraft Emissions* (Link) [accessed on 04 February 2026].
[e]EIB (2023). *EIB Project Carbon Footprint Methodologies* (Link) [accessed on 04 February 2026].

Assessment of impacts associated with a potential expansion to 46 MAP has not been undertaken, as such an expansion forms part of a future development scenario that is currently uncertain and falls outside the scope of the present ESIA. This approach is consistent with that adopted by majority of the other specialist studies, which assess only those project components and activities included within the defined scope of the current application.

Any future expansion and the associated impacts arising from increased passenger volumes would be subject to a separate environmental assessment process, at which stage the relevant impacts including GHG emissions would be assessed in detail.

**Relative Emissions**

According to the EU Technical Guidance, the baseline emissions (Be) are "*the emissions that would be generated under the expected alternative scenario that reasonably represents the emissions that would be generated if the project is not carried out.*" For the purposes of this assessment, it is assumed that, under the baseline (alternative-project) scenario, the Islam Karimov Tashkent International Airport (TAS) would continue operating at its current capacity (handling approximately 10 million passengers per annum, consistent with 2025 levels).

The relative GHG emissions represent the difference between the absolute emissions and the baseline emissions for a typical year of operation. The absolute GHG emissions are the annual emissions estimated for an average year of operation for the Project.

Scope 1 and 2 Emissions

The analysis indicates that the Project, with an annual throughput of 20 million passengers, would lead to an increase in GHG emissions of approximately 29,400t$CO_2$e per year relative to the baseline scenario (10 million passengers per annum) for scope 1 and 2 emissions as shown in Table 7-5.

**Table 7-5 Calculated Relative Scope 1 and 2 GHG Emissions**

| Description | Units | Absolute Emissions ($A_b$) | Baseline Emissions ($B_e$) |
|---|---|---|---|
| Total number of passengers[a] | Pax/year | 20,000,000 | 10,000,000 |
| Average emissions per passengers[b] | kg$CO_2$e/pax | 2.94 | 2.94 |
| Conversion | t$CO_2$e/kg$CO_2$e | 0.001 | 0.001 |
| Annual GHG emissions | t$CO_2$e/year | 58,800 | 29,400 |
| **Relative emissions ($R_e$)** | **t$CO_2$e/year** | | **29,400** |

**Sources:**

[a]5 Capitals (2025) *Tashkent New Gateway Hub International Airport Uzbekistan: Environmental & Social Impact Assessment: Scoping Report.*

[b]Airport Carbon Accreditation (2024) *Annual Report 2023-2024* (Link) [accessed on 04 February 2026].

Scope 3 Emissions – LTO Cycle

The analysis indicates that the Project, with an annual throughput of 20 million passengers, would lead to an increase in GHG emissions of approximately 486,061 t$CO_2$e per year relative to the baseline scenario (10 million passengers per annum) for scope 3 emissions – LTO cycle as shown in Table 7-6. Flights beyond LTO have not been included in the assessment since quantification of beyond-LTO Scope 3 aircraft emissions is highly dependent on airline/route/fleet/flight-profile information that is not available or sufficiently defined at this stage of the Project.

**Table 7-6: Calculated Relative Scope 3 GHG Emissions for the LTO Cycle**

| Description | Units | Absolute Emissions ($A_b$) | Baseline Emissions ($B_e$) |
|---|---|---|---|
| Avg. number of annual passengers[a] | Pax/year | 20,000,000 | 10,000,000 |
| Avg. number of annual flights (for 20 million pax)[b] | flights/year | 125,984 | 62,992 |
| Proportion of domestic flights[c] | % | 1% | 1% |
| Avg. number of annual of domestic flights | flights/year | 1,260 | 630 |
| Avg. fuel consumption of domestic flights[d] | kg/flight | 800 | 800 |
| Conversion | t/kg | 0.001 | 0.001 |
| Annual fuel consumption of domestic flights | t/year | 1,008 | 504 |
| $CO_2$ emission factor[e] | $kgCO_2$/LTO | 3,104 | 3,104 |
| $N_2O$ emission factor[e] | $kgN_2O$/LTO | 0 | 0 |
| $CH_4$ emission factor[e] | $kgCH_4$/LTO | 0 | 0 |
| $CO_2$ GWP[e] | | 1 | 1 |
| $N_2O$ GWP[e] | | 28 | 28 |
| $CH_4$ GWP[e] | | 265 | 265 |
| Conversion | $tCO_2e/kgCO_2e$ | 0.001 | 0.001 |
| **Annual GHG emissions from domestic flights** | **$tCO_2e$** | **3,914** | **1,957** |
| Proportion of international flights | % | 99% | 99% |
| Avg. number of annual of international flights | flights/year | 124,724 | 62,362 |
| Avg. fuel consumption of international flight | kg/flight | 2,500 | 2,500 |
| Conversion | t/kg | 0.001 | 0.001 |
| Annual fuel consumption of international flights[d] | t/year | 311,810 | 155,905 |
| $CO_2$ emission factor[e] | $kgCO_2$/LTO | 3,104 | 3,104 |
| $N_2O$ emission factor[e] | $kgN_2O$/LTO | 0 | 0 |
| $CH_4$ emission factor[e] | $kgCH_4$/LTO | 0 | 0 |
| $CO_2$ GWP[e] | | 1 | 1 |
| $N_2O$ GWP[e] | | 28 | 28 |
| $CH_4$ GWP[e] | | 265 | 265 |
| Conversion | $tCO_2e/kgCO_2e$ | 0.001 | 0.001 |
| **Annual GHG emissions from international flights** | **$tCO_2e$** | **968,208** | **484,104** |
| **Relative emissions ($R_e$)** | **$tCO_2e$/year** | | **486,061** |
| | | | |

| Description | Units | Absolute Emissions ($A_b$) | Baseline Emissions ($B_e$) |
|---|---|---|---|
| **Sources:**<br>[a]5 Capitals (2025) *Tashkent New Gateway Hub International Airport Uzbekistan: Environmental & Social Impact Assessment: Scoping Report*.<br>[b]Recalculated for 20 million passengers.<br>[c]Based on flight data from the existing Tashkent International Airport for the period 1 January to 21 December 2025.<br>[d]IPCC (2006). *Aircraft Emissions* (Link) [accessed on 04 February 2026].<br>[e]EIB (2023). *EIB Project Carbon Footprint Methodologies* (Link) [accessed on 04 February 2026]. | | | |

**Mitigation Measures**

As operational Scope 1 and 2 emissions exceed the EIB threshold of 20,000 $tCO_2e$/year, they are considered significant and require a full assessment. The Project incorporates mitigation measures including an on-site solar PV installation and LEED-aligned energy-efficient design. Additional measures recommended in the CCIA include high-efficiency HVAC systems, adaptive LED and airfield lighting, electrification of ground support equipment, and an advanced building management system.

#### 7.4.2.2 Shadow Carbon Cost and Alignment with National GHG Pathway

When applying the EU shadow carbon price, the Project's operational emissions represent a starting carbon cost of approximately €8 million in 2029, increasing over time in line with carbon-price escalation trajectories. Assessment against Uzbekistan's national pathway shows that Project emissions account for only 0.010–0.011% of total projected national emissions through 2035, indicating compatibility with the country's NDC target of reducing emissions intensity by 50% against the 2010 baseline.

### 7.4.3 Impact of Climate Change on the Project

#### 7.4.3.1 Climate Risks

The CCIA evaluates historical trends and climate projections under SSP2-4.5 and SSP5-8.5 scenarios for 2025, 2050, and 2075. Temperature increases of up to 25.8% in mean monthly temperatures and a substantial rise in "Extreme Danger" heat-stress days (167%–771.9% by 2075, depending on scenario) are projected. Cooling-degree days are expected to rise significantly, increasing energy demand, while heating-degree days decline toward mid-century. Extreme precipitation is projected to increase by 14.4–23.7% for 24-hour 1-in-100-year storm events, raising the risk of localised flooding, impaired runway performance and operational disruption.

A structured vulnerability assessment identified flooding, extreme heat, extreme precipitation, and extreme cold as the most relevant climate hazards requiring detailed evaluation. Flooding poses risks to infrastructure and flight operations, particularly due to increased extreme rainfall and the flat terrain of the airport site. Extreme heat threatens worker safety and operational efficiency, especially for airside personnel. Rising temperatures may also reduce aircraft lift, increase fuel consumption, and affect runway integrity. Extreme precipitation events may compromise braking performance and necessitate low-visibility procedures, while extreme cold increases aircraft and runway icing risks, requiring enhanced de-icing capacity.

In addition, extreme wind has been identified as a material climate hazard for the Project. Projected increases in extreme wind events have the potential to disrupt airport operations by affecting aircraft take-off and landing performance, increasing the likelihood of delays, diversions and temporary operational restrictions. Strong winds may also generate

sandstorms, reducing visibility, affecting airside safety and contributing to the long-term abrasion of aircraft and airport infrastructure. To enhance climate resilience, the Project will incorporate appropriate engineering and operational measures, including consideration of prevailing wind conditions in detailed design where practicable, weather monitoring and forecasting, and operational procedures to support safe airport operations during periods of extreme wind.

#### 7.4.3.2 Adaptation Measures

Adaptation measures recommended in the CCIA include upgrading stormwater infrastructure to account for projected rainfall increases, grooving of runways, proactive weather monitoring, enhanced heat-stress protocols, rescheduling of labour-intensive tasks during cooler periods, procurement of airside PPE, and increasing de-icing equipment and operational capacity.

### 7.4.4 Impacts on Communities and Ecosystem Services

The Project's climate-related impacts on surrounding communities are assessed as negligible, provided effective stormwater management prevents downstream flooding and groundwater abstraction remains within sustainable limits to avoid affecting agricultural users. The Project site has been almost entirely transformed from its natural state and does not include forested areas, coastal ecosystems, or critical habitats; therefore, climate-related impacts on ecosystem services or areas important for climate adaptation and mitigation are considered insignificant.

### 7.4.5 Conclusion of CCIA

The CCIA concludes that although the Project will generate significant emissions, primarily from aviation activities, operational emissions can be effectively mitigated through the proposed design and technology improvements.

Climate change presents several material risks to the Project; however, with the recommended adaptation measures in place, residual risks can be reduced to acceptable levels. Overall, the Project remains aligned with Uzbekistan's national climate commitments and international climate-risk management good practice.

### 7.4.6 Carbon and Energy Management Plan

Prior to commencement of airport operations, the Project Company will prepare and implement a Carbon and Energy Management Plan (CEMP) to support the ongoing management of greenhouse gas emissions and climate-related transition risks throughout the operational life of the Project.

The Plan will provide a framework for the following actions:

- Preparation of an annual greenhouse gas inventory covering Scope 1, Scope 2 and relevant Scope 3 emissions, using internationally recognised GHG accounting methodologies consistent with those adopted in the CCIA.
- Annual monitoring, verification and reporting of GHG emissions and energy consumption.
- Identification, implementation and periodic review of energy efficiency and GHG reduction measures, including opportunities for increased renewable energy use and adoption of low-carbon technologies.
- Periodic review of climate-related transition risks, including changes in climate policy, regulatory requirements, carbon pricing mechanisms and technological developments.

- Annual reporting of GHG performance and implementation of the Plan to the Project Company and lenders, as required under the financing agreements.

The CEMP will be reviewed periodically throughout the operational phase to reflect changes in airport operations, regulatory requirements and international good practice.

# 8.0 Noise and Vibration

This chapter assesses the potential impacts that may occur as a result of the Project's construction and operational activities on the noise environment. It further looks to identify measures that can be undertaken and/or implemented to mitigate, manage and monitor such impacts.

## 8.1 Applicable Requirements & Standards

### 8.1.1 National Regulations

SanR&N No. 0331-16 'Admissible noise level into the living area, both inside and outside the buildings'

This law sets out the acceptable noise levels for habitable areas both inside and outside of buildings in Uzbekistan as shown in Table 8-1.

**Table 8-1 Noise Limits under SanPin No.0331-16**

| Location | Time | SanPiN No. 0331-16 |
|---|---|---|
| Noise levels in premises of residential, public buildings and on the territory of residential areas | 7am to 11pm | 55dB $L_{Aeq,T}$ |
| | 11pm to 7am | 45dB $L_{Aeq,T}$ |
| Offices, commercial | 7am to 11pm | 45dB $L_{Aeq,T}$ |

SanR&N No. 0325-16 Sanitary standards for permissible noise levels in the workplace

This law aims to protect the health of the staff and workers in the workplace. The law represents noise levels for a variety of internal and external application as shown in Table 8-2 and Table 8-3.

**Table 8-2 Work Environment Noise Limits**

| Type of work, Workplace | Requirement |
|---|---|
| Performing all types of work on the permanent workplaces in industrial premises and in the enterprises | 80db(A) |

The national standards for vibration levels in residential houses are provided in SanN&R № 0331-16 "Residential house design in climatic conditions of Uzbekistan". For residential houses, the standard is 67 dB for nighttime and 72 dB for daytime, with a frequency of 37 and 61 Hz. For non-continuous vibration, the standards should be decreased by 10 dB. However, the standard does not provide any coefficient/allowance for non-frequent events such as passing trains. For the construction phase, the vibration limit will be 72 dB.

**Table 8-3 National Vibration Standards**

| Period | Permanent Vibration, dB | Frequency (Hz) | Application Note |
|---|---|---|---|
| Daytime | 72 | 61 | Apply to continuous sources; reduce by 10 dB for non-continuous events. |
| Nighttime | 67 | 37 | Apply more conservative scheduling to avoid nighttime operations near receptors. |

The manual cites criteria developed by the United States Federal Transit Administration, which indicates vibration impact levels on residences and buildings where people normally sleep (see Table 8-4).

**Table 8-4 Federal Transit Administration Vibration Impact Criteria**

| Land Use Category | Vibration Impact Level for Frequent Events (VdB) | Vibration Impact Level Infrequent Events (VdB) |
|---|---|---|
| Category I: Buildings where low ambient vibration is essential for interior operations | 65 | 65 |
| Category II: Residences and buildings where people normally sleep | 72 | 80 |
| Category III: Institutional land uses with primarily daytime use | 75 | 83 |

*Note: "Frequent events" is defined as more than 70 events per day. "Infrequent events" is defined as fewer than 70 events per day.*

For non-residential areas, standards for building integrity were accepted in accordance with the following tables (Table 8-5 and Table 8-6) presents maximum continuous vibration levels for preventing damages to different type of buildings, as set by the American Association of State Highway and Transportation Officials (AASHTO) and Swiss Association of Standardization (SAS). This data could be used as thresholds for both phases – construction and operation for structural integrity of buildings/houses.

**Table 8-5 Maximum Continuous Vibration Levels for Preventing Damage**

| Description of Building Type | AASHTO (1990) | | SAS (1992) | |
|---|---|---|---|---|
| | mm/s | dB* | mm/s | dB* |
| Historic sites or other critical locations | 2.5 | 94 | 2.5 | 94 |
| Residential buildings with plastered walls / Building with foundation walls and floors in concrete, wooden ceilings, and walls in masonry | 5.1-7.6 | 100-104 | 5.1 | 100 |
| Residential buildings in good repair/ Building with foundation walls and floors in concrete, walls in concrete or masonry | 10.2-12.7 | 106-108 | 7.6 | 100 |
| Engineered structures without plaster / Buildings in steel or reinforced concrete | 25.4-38.1 | 114-118 | 12.7 | 108 |

*Notes*

*AASHTO = American Association of State Highway and Transportation Officials, SAS = Swiss Association of Standardization.*

*Source: California Department of Transportation (2013), US Transportation Research Board (2012).*

As international standards for vibration were used, the standards provided in general guidance on human response to building vibrations is given in:

- AS 2670.2–1990 Evaluation of human exposure to whole-body vibration: continuous and shock-induced vibration in buildings" (1 to 80 Hz);
- ISO 2631–2:2003 Mechanical vibration and shock: evaluation of human exposure to whole body vibration, Part 2: Vibration in buildings (1 Hz to 80 Hz); and
- BS 6472 –1:2008 Guide to evaluate human exposure to vibration in buildings. Vibration sources other than blasting. Based on these guidelines, the ground vibration limits are presented in Table 8-6.

**Table 8-6 Ground Vibration Limits for Human Comfort**

| Category | Period | Peak Component Particle Velocity (mm/s) | Vibration, dB |
|---|---|---|---|
| Residential | Nighttime | 0.2 mm/s | 72 |
| | Daytime | 0.3 mm/s | 76 |
| Offices | When occupied | 0.6 mm/s | 82 |
| Occupied non-sensitive sites, such as factories and commercial premises | When occupied | 2.5 mm/s | 94 |

A sensitive site includes houses and individual residential buildings, theatres, schools, and other similar buildings occupied by people.

Therefore, as a result of comparison of both national and international standards for vibration, it was accepted that national standards for vibration in residential areas are more stringent, and therefore will be applied for the project, i.e. 72 dB during daytime and 65 dB during nighttime.

#### 8.1.1.1 Aircraft Noise Standards

Currently, the following regulatory documents are in force in Uzbekistan, establishing requirements for aircraft noise levels:

GOST 22283-14 "Aircraft noise. Permissible noise levels in residential areas and methods for measuring it" for assessing and regulating aviation noise (Interstate Standard, 2009). The standard establishes maximum permissible levels of aircraft noise in newly designed residential areas near existing airfields and airports, as well as in residential areas of cities and urban-type settlements around newly designed airfields and airports during take-off, flight and landing of aircraft and helicopters, when testing engines at airfields during flights, and also establishes methods for measuring aircraft noise.

GOST 23337-2014 "Noise. Methods for measuring noise in residential areas and in residential and public buildings" (Interstate Standard). The standard establishes methods for measuring, in real conditions, noise levels from external sources in residential areas in cities, towns and other populated areas and noise levels from external and internal sources in residential and public buildings.

GOST 17228-2014 "Passenger and transport aircraft. Permissible noise levels generated on the ground" (Interstate standard). The standard establishes the maximum permissible noise levels generated by subsonic passenger and transport aircraft with turbojet or turbofan engines of all mass categories with a runway (RWY) length of more than 610 m, as well as aircraft with piston, turboprop and turboprop fan engines with a take-off weight of more than 8618 kg, on the ground at control points under the initial conditions established by GOST 17229. This standard does not establish permissible noise levels as noise standards for restricting residential development in the vicinity of airports and airfields (these standards are regulated by GOST 22283).

GOST 17229-2014 "Passenger and transport aircraft. Method for determining noise levels generated on the ground" (Interstate Standard). This standard establishes a method for determining noise levels generated by the above-mentioned aircraft on the ground during take-off, climb, and landing.

### 8.1.2 Lender Requirements

#### 8.1.2.1 IFC/WBG Guidelines

The IFC/World Bank Group, 'Environmental Health and Safety Guidelines' (General EHS Guidelines) and industry-specific examples of Good International Industry Practice (GIIP) state the following (see Table 8-7).

**Table 8-7 WHO Noise Guidelines**

| Receiver | General EHS Guidelines | |
|---|---|---|
| | Daytime (7.00 am – 10.00 pm) | Nighttime (10.00 pm – 7.00 am) |
| | LAeq, 1hr dB | |
| Residential | 55* | 45* |
| Offices, commercial, industrial | 70 | 70 |

* Noise impacts should not exceed the levels presented above, or result in a maximum increase in background levels of 3 dB(A) at the nearest sensitive receptor location off-site.

If the above guidelines apply to new airports, the noise model will be considered in terms of $L_{day}$ ($L_{Aeq,15hr}$) and $L_{night}$ ($L_{Aeq,9hr}$) rather than the 1-hour guidelines. Further due to the nature of aircraft events, it is unlikely that there will be compliance, in some neighbourhoods, for the 3 dB(A) over background noise level increase limitation.

#### 8.1.2.2 IFC Good International Industry Practice (GIIP or GIP)

An example of GIIP is the main overarching ICAO policy on aircraft noise is the Balanced Approach to Aircraft Noise Management, adopted by the ICAO Assembly in its 33rd Session (2001) and reaffirmed in all the subsequent Assembly Sessions. This document outlines the four principal elements:

- Reduction of noise at source
- Land-use planning and management
- Noise abatement operational procedures
- Operating restrictions on aircraft

#### 8.1.2.3 EBRD Guidelines

EBRD sets its Environmental and Social Requirements (ESR) in ten documents of which the following are key elements for the noise assessment:

- ESR1 Assessment and management of environmental and social risks and impacts
- ESR3 Resource efficiency and pollution prevention and control
- ESR4 Health, safety and security
- ESR8 Cultural Heritage
- ESR10 Stakeholder Engagement

ESR3 states the following:

- *Clients will assess the noise and vibration impacts of the project, based on the results of the environmental and social risk assessment. This may require baseline data, the identification of key receptors and the assessment of impacts of the development,*

*taking into account both negative and positive impacts and compliance with national legislation and GIP.*

## 8.2 Scoping

The scope of the noise and vibration assessment undertaken for this ESIA includes baseline characterisation, predictive modelling of operational noise, assessment of potential construction noise and vibration effects, and identification of mitigation and monitoring requirements.

The key components of the assessment are as follows:

Baseline noise surveys (multiple rounds) were undertaken at representative locations within and around the Project area to establish existing daytime and night-time ambient noise conditions. Monitoring locations were selected to represent nearby residential receptors and other noise-sensitive areas potentially affected by the Project.

A detailed operational noise assessment has been conducted using recognised airport noise prediction modelling tools. The modelling incorporates forecast aircraft movements, fleet mix, runway utilisation patterns, flight paths, ground running operations, and associated surface transport activity. The purpose of the modelling is to predict future noise levels at identified sensitive receptors and to define the spatial extent of operational noise contours.

The assessment considers noise from:

- Aircraft take-off and landing (airborne noise);
- Taxiing and ground running operations;
- Road traffic; and
- Ground support equipment.

Construction-phase noise and vibration impacts have also been assessed qualitatively and, where necessary, quantitatively, taking into account equipment types, duration of works, and proximity to receptors.

The predicted noise levels have been evaluated against applicable national regulations and relevant international guidance, including IFC/WBG Environmental, Health and Safety Guidelines, where appropriate. The assessment also considers potential exceedances of guideline values and the identification of significant adverse effects.

The study identifies feasible mitigation measures and establishes a monitoring framework to manage construction and operational noise, ensure regulatory compliance, and minimise potential disturbance to nearby communities.

The overall objective of the noise and vibration assessment is to determine the likely magnitude and significance of impacts associated with the airport development and to define appropriate mitigation and management measures to reduce noise-related effects on surrounding receptors.

## 8.3 Sensitive Receptors

The noise sensitive receptors considered within this ESIA include residential dwellings and communities, roadside receptors along access routes, commercial premises, industrial facilities, and on-site project workers. Residential receptors, including the nearest dwelling located approximately 70 m from the Project boundary (H1), are considered the most sensitive to noise. Industrial and commercial receptors are considered to have lower sensitivity due to their compatibility with higher ambient noise environments.

Sensitive habitats and ecological receptors are also recognised as potentially sensitive to noise; however, impacts on ecological receptors are assessed separately within the Terrestrial Ecology chapter of this ESIA.

Noise sensitive receptors were identified through a review of recent satellite imagery, supported by multiple site visits undertaken during the ESIA process. Receptors located within a 10 km study area were identified. While all identified human receptors were included individually within the detailed operational noise modelling report which is included as an appendix 5, the ESIA presents them in grouped categories (e.g., residential communities, roadside receptors, industrial areas) for clarity of assessment.

The receptors predicted to experience the highest potential effects are those located within approximately 4 km of the Project site, particularly those in closest proximity to the runway alignment and flight paths. Baseline noise surveys were undertaken at representative monitoring locations selected to reflect the range of identified receptor types. Monitoring locations included positions representative of the nearest residential receptors, including the closest dwelling (H1), as well as receptors located at greater distances to characterise the wider ambient noise environment.

**Table 8-8 Noise Sensitive Receptors**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Residential Communities | **High** | High sensitivity due to the presence of permanent residents, including vulnerable groups such as children, the elderly, and individuals with health conditions. Residential receptors are particularly sensitive to noise, especially during evening and nighttime periods, where disturbance to sleep, rest, and general wellbeing may occur. This includes places of education, worship etc. which are located as part of the communities. |
| Project workers | **Medium** | Medium sensitivity as workers may be exposed to elevated noise levels during construction and operation within the Project site. However, exposure is occupational in nature, time-limited, and managed through occupational health and safety controls, including administrative measures, and the use of appropriate personal protective equipment (PPE). |
| Roadside receptors (including residential properties along access roads) | **Medium** | Medium sensitivity due to temporary and intermittent exposure to increased noise levels from construction traffic, particularly HGVs. While exposure durations are typically short-term (pass-by events), receptors located close to access roads may experience noticeable increases in daytime noise levels. Sensitivity may increase if residential properties are present immediately adjacent to road corridors. |
| Commercial / Industrial facilities | **Low** | Low sensitivity as surrounding industrial and commercial receptors are generally compatible with higher ambient noise environments and typically operate during daytime hours. These receptors have a higher tolerance for temporary or incremental increases in noise associated with industrial and construction activities. |

## 8.4 Observations and Baseline Conditions

There are no major sources of noise in the Project area. The existing sound environment within and around the Project site is predominantly influenced by rural activities. Baseline monitoring results indicate that ambient noise levels are typically governed by natural sources (e.g., wind, fauna) and intermittent human activities rather than continuous industrial or transport noise.

The primary identifiable existing anthropogenic noise sources include:

- A railway line located to the east of the Project site, generating intermittent pass-by noise events depending on train frequency, speed and type;
- A local road traversing the central part of the site, contributing occasional vehicle-related noise;
- Agricultural activities, including the use of tractors and farm machinery; and
- Sporadic movements of vehicles along local unpaved tracks.

These sources result in periodic and short-duration increases in noise levels; however, no major continuous industrial or high-traffic transport noise sources were identified within the immediate vicinity of the Project site.

### 8.4.1 Baseline Surveys

Ambient noise monitoring was undertaken at the eleven (11) receptor locations identified during the scoping stage. In order to obtain representative baseline conditions across all locations, monitoring was conducted over three separate rounds, with measurements undertaken for two (2) consecutive days at each location per round. Noise impacts from airport operations will extend over a wider area, influenced by flight paths, aircraft altitude, and operational procedures. As such, noise monitoring and assessments consider a broader spatial extent, including receptors.

The use of multiple monitoring rounds allowed full coverage of all identified sites while taking into account favourable meteorological conditions and access constraints associated with winter weather. This phased approach ensured that data collection was completed at all locations under suitable conditions and that the baseline acoustic environment was adequately characterised.

Given that operational airport noise has the potential to result in significant impacts at nearby receptors, a comprehensive survey programme was implemented. Monitoring was undertaken using calibrated Class 1 integrating Sound Level Meters (SLM), consistent with international good practice for environmental noise measurement.

The monitored parameters included:

- LAeq,T (equivalent continuous sound level)
- LA90,T (background noise level)
- LA50,T and LA10,T (statistical noise levels)
- LAmax (maximum A-weighted sound level)
- Lpeak (both weighted and unweighted peak sound pressure levels)

Monitoring locations were selected to represent the range of identified noise-sensitive receptors and were positioned in secure areas on open land, where practicable, to minimise the influence of reflections or extraneous localised noise sources.

The indicative noise and vibration survey locations are presented in Figure 8-1. Locations were selected with reference to the anticipated runway orientation and potential aircraft flight paths, which are dependent on prevailing wind direction and corresponding approach and departure procedures. Representative images showing noise monitoring are shown in Figure 8-2.

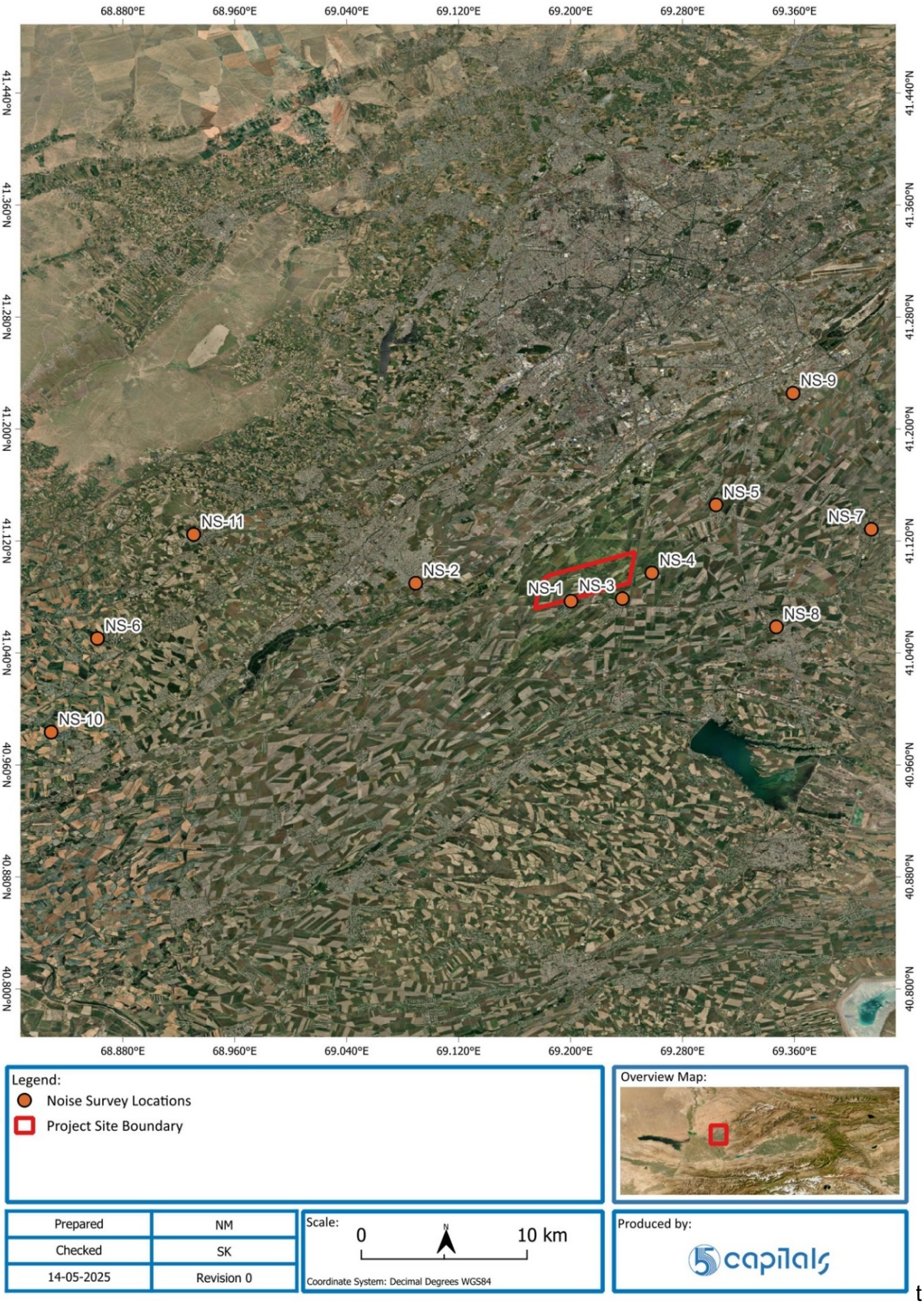



**Figure 8-1 Noise and Vibration Survey Locations**

**Figure 8-2 Noise Monitoring Activity at Project Surrounding Area**

#### 8.4.1.1 Noise Monitoring Results

Based on field observations recorded during the monitoring surveys, the existing acoustic environment is characteristic of a rural setting and is primarily influenced by intermittent local activities. Background noise levels (LA90,T) were generally governed by natural and low-level anthropogenic sources.

As outlined earlier in this report, the main noise influences observed during the monitoring period included:

- Occasional agricultural activities (e.g., tractor operation);
- Intermittent vehicle pass-by events on nearby roads;
- Human activity within settlements;
- Animal-related noise (e.g., dogs, donkeys, frogs and insects).

At certain monitoring locations, intermittent railway pass-by events contributed short-duration elevated noise levels (LAmax), depending on train frequency and timing.

During evening and night-time periods, background noise was frequently influenced by natural sources such as frogs and crickets. These sources contributed to relatively stable nocturnal background sound levels and are considered characteristic of the rural baseline environment rather than anthropogenic disturbance.

Figure 8-3 to Figure 8-13) present the recorded baseline noise levels across the full monitoring period at each location. The results indicate that, in general, ambient noise levels in the vicinity of the Project site are low and typical of rural agricultural areas. Measured daytime and night-time LAeq,T values were generally compliant with applicable national and international guideline values. Short-duration increases in noise levels were observed at specific times,

primarily associated with identifiable transient events such as vehicle pass-bys, railway movements, or farm activity.

Overall, the baseline results confirm that the Project area currently experiences a relatively quiet acoustic environment, particularly during night-time periods, which is an important consideration in assessing the magnitude of potential operational airport noise impacts.

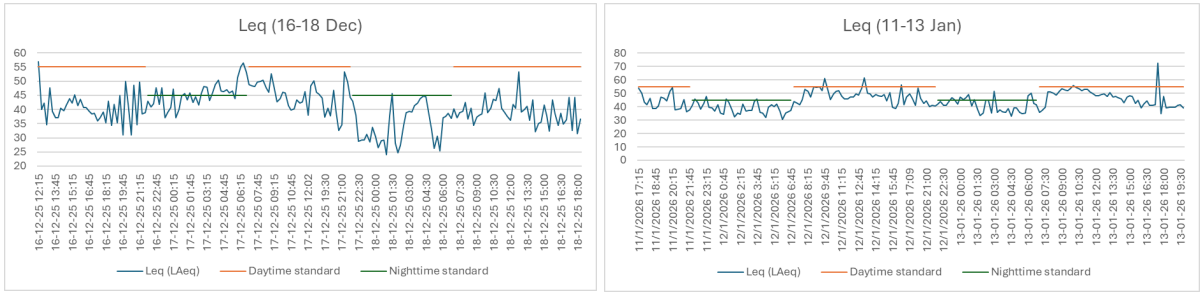



**Figure 8-3 Trends in Recorded Noise Data at monitoring location NS-1**

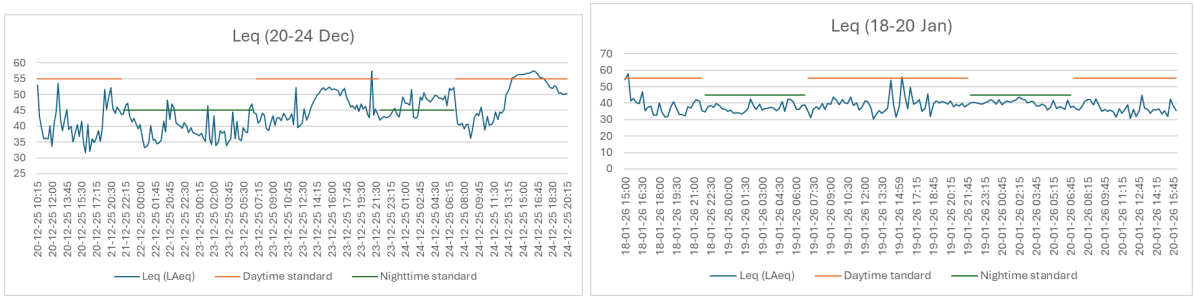



**Figure 8-4 Trends in Recorded Noise Data at monitoring location NS-2**

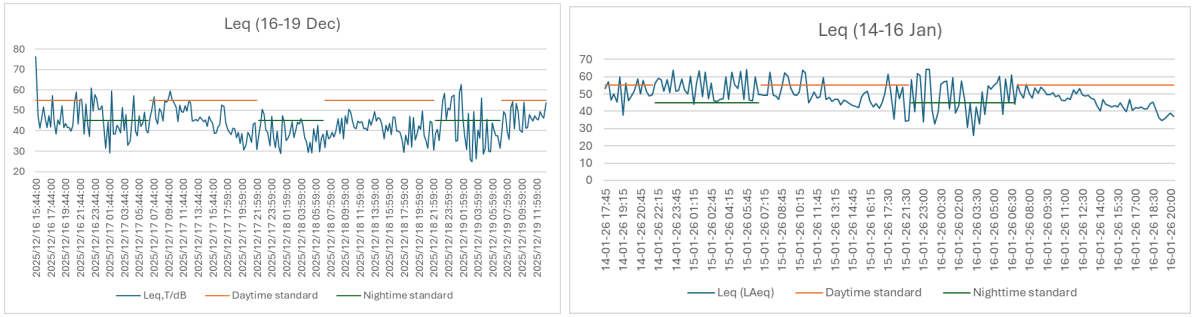



**Figure 8-5 Trends in Recorded Noise Data at monitoring location NS-3**

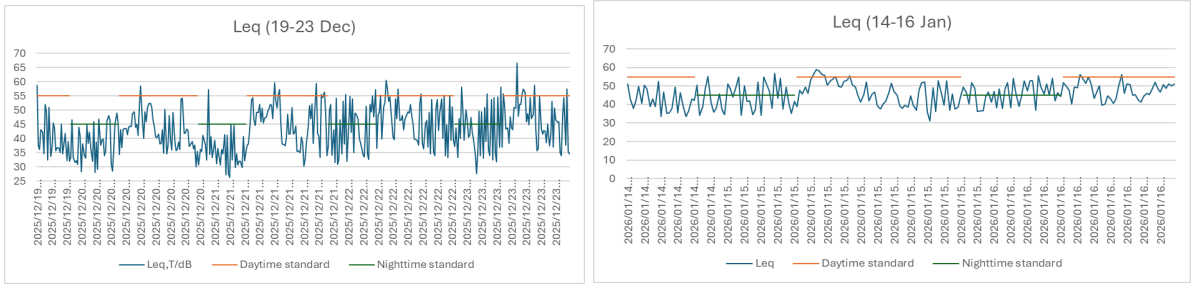



**Figure 8-6 Trends in Recorded Noise Data at monitoring location NS-4**

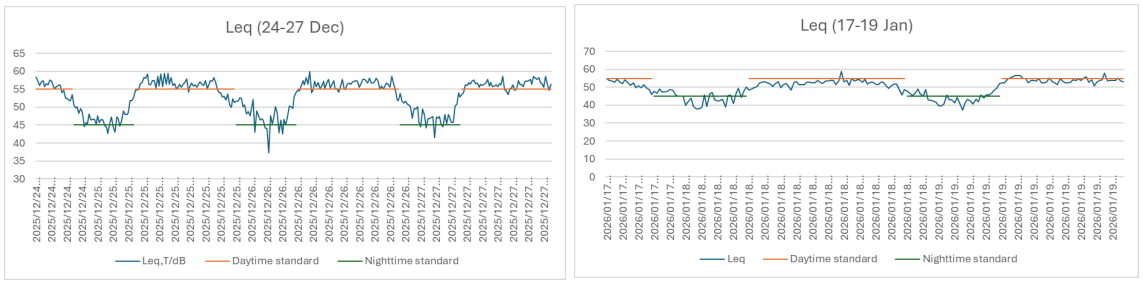



**Figure 8-7 Trends in Recorded Noise Data at monitoring location NS-5**

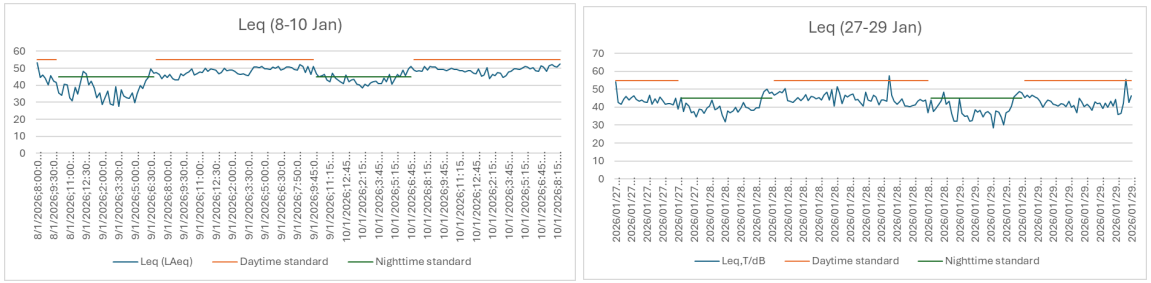



**Figure 8-8 Trends in Recorded Noise Data at monitoring location NS-6**

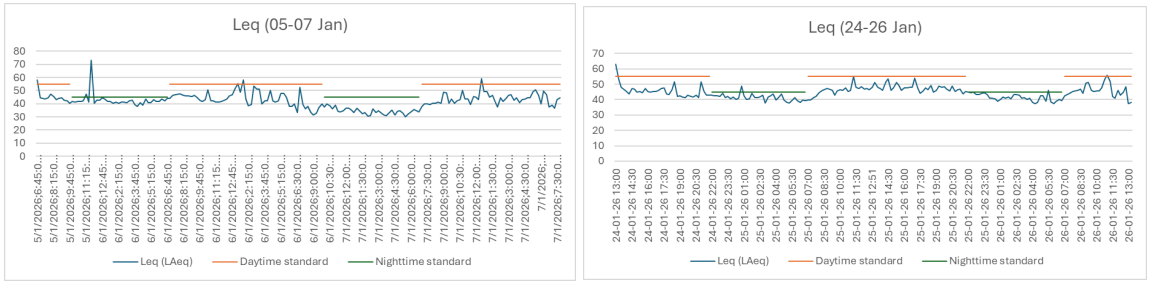



**Figure 8-9 Trends in Recorded Noise Data at monitoring location NS-7**

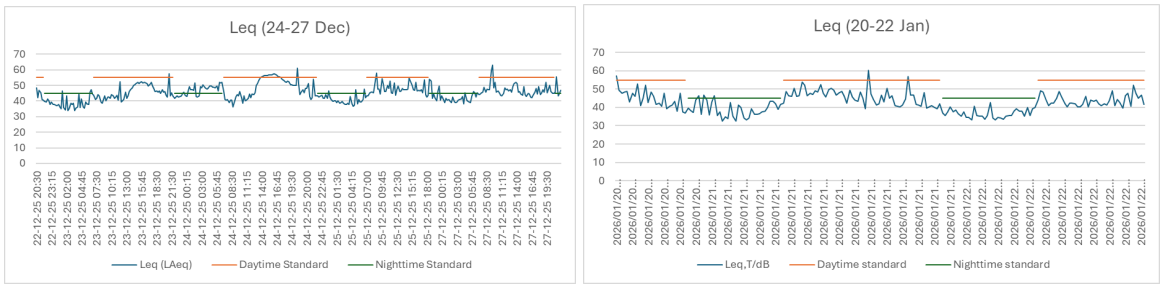



**Figure 8-10 Trends in Recorded Noise Data at monitoring location NS-8**

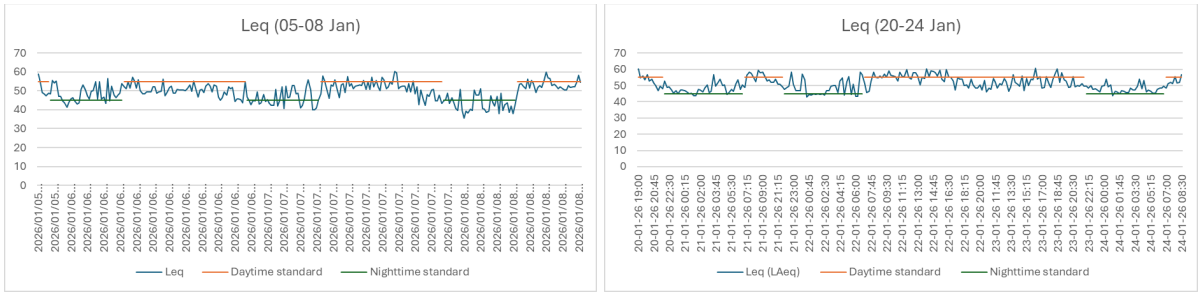



**Figure 8-11 Trends in Recorded Noise Data at monitoring location NS-9**

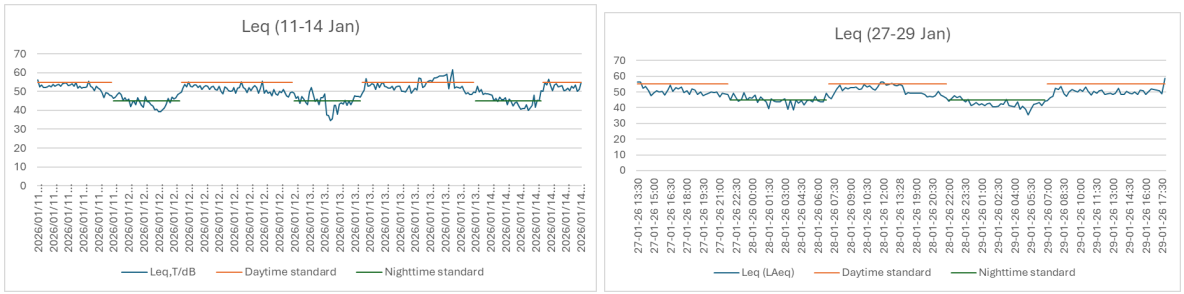



**Figure 8-12 Trends in Recorded Noise Data at monitoring location NS-10**

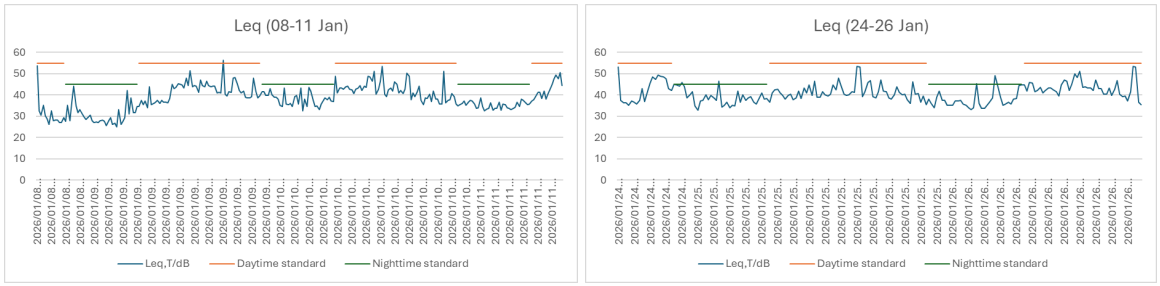



**Figure 8-13 Trends in Recorded Noise Data at monitoring location NS-11**

## 8.5 Potential Impacts, Mitigation, and Management

### 8.5.1 Construction Phase

The identification of aspects associated with the construction of the project and the receptors that may be potentially affected has been used to identify potential noise and vibration effects during the construction phase. These are presented in following table and discussed. Indirect impact from noise, e.g. potential disturbance to wildlife, presented in Section 9.0 Terrestrial Ecology and Birds.

**Table 8-9 Aspects and Impacts – Noise and Vibration during Construction**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| Construction activities on-site (including temporary plant and use of mobile equipment) | Noise propagation | Increased noise influence at receptors expected up to 500m or to a maximum of 2km in very calm and quiet ambient conditions. | Human and ecological receptors in zone of influence, including residences |
| | Vibration | Impacts within the site footprint and immediately adjacent to the site. | |
| Movement of vehicles to and from the Project site | Noise propagation | Impacts along road corridors used by construction vehicles to the site. Particularly due to increased HGV movements. | |

Construction noise will have a localised spatial extent, largely contained within the project footprint. The duration of the impact will be short considering individual noise emission events relative to the lifespan of the project. The frequency of occurrence is high as noise emissions will likely occur daily, but noise emissions are reversible once the activity ceases.

#### 8.5.1.1 Noise from On-site Construction Activities

**Noise Assessment Methodology**

The types and number of the main plant and equipment that are likely to be used during construction has been provided by the EPC contractor and listed earlier in this report which is used in this assessment. Noise generation data for the anticipated plant and equipment has been obtained from 'British Standards: Code of practice for noise and vibration on construction and open sites'. The anticipated construction plant and equipment listed in Table 2-6, provided by the EPC contractor has been used in the assessment.

The construction plant inventory adopted for the assessment represents the principal items of plant anticipated to operate concurrently during the noisiest construction activities, based on the current level of project design and construction planning. It is not intended to represent the total construction fleet that will be present on site over the duration of the works. Construction activities will be undertaken in phases and across different work areas, such that not all items of equipment will operate simultaneously at a single location. The assessment therefore adopts a representative concurrent plant inventory for each construction activity, providing a proportionate basis for predicting worst-case construction noise levels at the ESIA stage.

Predicted noise levels for construction plant impacts at receptors have been calculated using the noise ratings for equipment (as above), in combination with distance attenuation to receptors. The predictions assume that each piece of equipment will only be operational for

50% of the working day. The predictions also work on the basis that one number of each of equipment is located at the same location at the boundary of the site as a conservative approach.

In order to derive representative noise level for the purpose of calculating the construction noise, baseline daytime and night time noise levels have been calculated from the logarithmic average of all measurements obtained over a given period of time in order to obtain a single ambient noise level (presented in 8.4.1.1 above) for each location and monitoring period.

A basic modelling assessment using equations set out in Annex F of 'BS5228-1:2009 Part 1 Noise' has been used to predict the effects of distance propagation and ground absorbance related to mechanical and installation works shown in the table below. The adjustment due to ground absorbance has been made based on all nearby receptors being >25m from source and using the equation '25*LOG(10/Distance to receptor)+2'. (*Note: The relevant noise monitoring location has been selected by determining the nearest baseline monitoring location to each receptor*). The cumulative impact is based on the overall noise and considers the baseline noise and the construction noise levels.

In respect of potentially more sensitive residential receptors, BS5228-1:2009+A1:2014 outlines criteria in Annex E.3, which considers impact significance based upon the change in ambient noise associated with construction activities. BS5228 states that this can be considered as, '*an alternative and/or additional method to determine the significance of construction noise levels*'.

Paragraph E.3.2 describes Example Method 1 (The ABC Method), which considers the existing ambient noise environment (the LAeq noise level environment) at the neighbouring sensitive receptors and identifies levels that if exceeded would be considered to result in a significant adverse effect and is noted to apply to residential receptors only.

Table E.1 of BS5228 sets out significance effect threshold values at receptors. The process for determining this requires the determination of the ambient noise level at the relevant receptor (rounded to the nearest 5dB), which is then compared to the total noise level, including the predicted construction noise level. If the combined noise level exceeds the appropriate category value, then the impact is deemed to be significant. The relevant statistics from Table E.1 are set out below.

**Table 8-10 Construction Phase Noise – ABC Assessment**

| Assessment category and threshold value period (LAeq) | Threshold value, in decibels - dB(A) | | |
|---|---|---|---|
| | Category A | Category B | Category C |
| Daytime (0700 to 1900 hrs) and Saturdays (0700 to 1300 hrs) | 65 | 70 | 75 |
| Evenings and weekends [D)] | 55 | 60 | 65 |
| Night-time (2300 to 0700 hrs) | 45 | 50 | 55 |
| *NOTE 1 A potential significant effect is indicated if the $L_{Aeq,T}$ noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level* | | | |
| *NOTE 2 If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases more than 3 dB due to site noise* | | | |

*NOTE 3 Applied to residential receptors only.*

*A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.*

*B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.*

*C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.*

*D) 19.00-23.00 weekdays, 13.00-23.00 Saturday and 07.00-23.00 Sundays*

***Note:** The ABC Method does not provide levels of significance, as such professional judgement has been applied to determine this within following significance tables.*

### Impacts on Residential Receptors from Onsite Construction Activities

The construction phase of the project will generate additional noise to the surrounding area which comes from mobile and stationary plant used for the site preparation and development. Each phase of construction will entail the use of various machinery and plant which will be deployed at various locations.

Predicted combined sound level as a result of the working of all plant and equipment that are expected to be used for the construction as well as the baseline noise levels have been used to predict the combined noise levels at identified receptor locations and the calculated change in noise when compared to the baseline.

**Table 8-11 Summary of Predicted Noise Impacts from Construction Activities**

| Receptor | Relevant noise monitoring location | Baseline noise level | | Anticipated Construction Noise at Receptor (dBA) | Calculated Noise Level at Receptor Location (dBA) | | Change from Baseline | |
|---|---|---|---|---|---|---|---|---|
| | | Day | Night | | Day | Night | Day | Night |
| H1 | NS-1 | 51.4 | 44.2 | 58.3 | 59.1 | 58.4 | 7.7 | 14.2 |
| H2 | NS-2 | 47.9 | 43.9 | 21.2 | 47.9 | 43.9 | 0.0 | 0.0 |
| H3 | NS-2 | 47.9 | 43.9 | 27.5 | 47.9 | 44.0 | 0.0 | 0.1 |
| H4 | NS-4 | 49.7 | 48.0 | 38.6 | 50.0 | 48.4 | 0.3 | 0.4 |
| H5 | NS-3 | 54.2 | 54.4 | 33.2 | 54.2 | 54.4 | 0.0 | 0.0 |

Predicted noise levels have been assessed at the five closest residential receptors (H1–H5) in accordance with BS5228-1:2009+A1:2014, applying the ABC assessment method.

Under the ABC method, significance is determined by comparing the total predicted construction noise level (LAeq, including ambient noise) against threshold values defined according to the existing ambient noise climate. For residential receptors:

- Category A applies where baseline ambient levels (rounded to the nearest 5 dB) are below the Category A threshold.
- Category B applies where baseline levels are approximately equal to Category A thresholds.
- Category C applies where baseline levels exceed Category A thresholds.

A significant effect is deemed to occur where:

- The total predicted construction noise level exceeds the relevant ABC threshold for the period; or

- Where baseline noise already exceeds the threshold, and construction activity results in an increase greater than 3dB.

The assessment adopts a conservative worst-case scenario, assuming all plant operates simultaneously at the closest point to the site boundary and that works could occur during both daytime and night-time periods.

**Daytime Assessment (07:00–19:00)**

Baseline daytime levels at the assessed receptors range between approximately 48–54 dBA. When rounded to the nearest 5 dB (i.e. 55 dBA), these fall below the Category A daytime threshold of 65 dBA. Accordingly, Category A criteria apply.

At H1, the predicted total daytime construction noise level is approximately 59 dBA. This is below the Category A daytime threshold of 65 dBA and therefore does not constitute a significant effect under BS5228-1:2009+A1:2014, despite representing an increase of approximately more than 7 dB over baseline.

At H2, H3, H4, and H5 predicted daytime noise levels remain at or only marginally above baseline (increases of less than 1 dB), and total levels are well below the 65 dBA threshold. Construction noise impacts at these receptors are therefore not significant during the daytime period.

**Night-time Assessment (23:00–07:00)**

Baseline night-time levels range between approximately 44–54 dBA. When rounded to the nearest 5 dB, these are approximately 55 dBA. This aligns with the Category C night-time threshold of 55 dBA.

At H1, the predicted total night-time construction noise level is approximately 58.4 dBA. This exceeds the Category C night-time threshold (55 dBA) by 3.4 dBA. The increase relative to baseline is approximately 14.2dB. Under the ABC method, this constitutes a significant adverse effect if night-time works were to occur.

At H2 and H3, predicted night-time levels remain effectively unchanged from baseline and below applicable thresholds, resulting in no significant effect. Similarly, at H5, with baseline noise level at 54.4 dBA, near the Category C threshold, but there is no significant increase predicted during the construction, resulting in no significant effect.

At H4, predicted increases are less than 1 dB and total levels remain close to baseline. The negligible increase means no significant effect would occur under the ABC criteria.

**Summary of Construction Noise Significance**

The assessment demonstrates that:

- Daytime construction noise is predicted to remain below BS5228-1:2009+A1:2014 Category A threshold levels at all assessed residential receptors and is therefore not significant.
- Night-time construction noise would result in a significant adverse effect at H1 under worst-case assumptions.
- Other receptors (H2–H5) are not predicted to experience significant construction noise effects.

It should be emphasised that the assessment assumes simultaneous operation of all plant at the site boundary and includes a hypothetical night-time working scenario. In practice, construction activities are expected to be phased and primarily restricted to daytime hours. With appropriate management measures, including control of working hours and implementation of best practice measures, construction noise impacts are expected to be temporary, localised and manageable.

As outlined earlier in the report, construction activities are not anticipated in full scale as part of the routine construction programme. Should night-time working be required, the activities will be minimised to the extent reasonably practicable and managed through mitigation measures, stakeholder notification and any necessary approvals from the relevant authorities.

Compliance with the construction noise mitigation requirements and application of GIIP will form part of the EPC Contractor's contractual environmental and social obligations and will be subject to monitoring and oversight by the SPV.

#### 8.5.1.2 Impacts from Ground Vibration

The threshold of perception of vibration by human beings are typically in the range between 0.14mm/s to 0.3mm/s (BS 5228). Impacts from exposure to vibration is expected to be considerable beyond these values with potential to cause disturbance, startle, cause annoyance or interfere with work activities.

Data included in BS 5228 has been reviewed to understand the distance decay in vibration levels generated from auger driven piling. This activity was chosen as it represents the most likely to generate vibration during construction works. Reviewed data indicates that vibration levels would be well below 0.14 mm/s at a distance of 20 m or more from the source. This indicates that vibration from construction activities and construction traffic movements would be negligible impact off-site.

#### 8.5.1.3 Vehicular Traffic Noise

Construction activities, particularly during the land preparation phase, will require a significant number of heavy-duty truck movements for the transport of fill material, equipment, and construction supplies. As described earlier in this ESIA, these movements will occur throughout active construction periods and are expected to be most intensive during earthworks and ground preparation.

Noise impacts associated with construction vehicles will vary depending on:

- The phase of works;
- The number and frequency of HGVs;
- The timing of deliveries (e.g., peak vs. off-peak periods); and
- The proportion of heavy vehicles relative to existing traffic flows.

Heavy vehicles generate higher noise levels than light vehicles due to engine size, exhaust systems, braking, and body rattle, particularly during acceleration, deceleration, and gear changes. The exact route that will be used by construction vehicles is not determined at the time of preparing this ESIA and will be detailed as part of the Traffic Management Plan that will be prepared by the EPC Contractor.

Although short-term, localised increases in heavy vehicle movements may occur during peak delivery periods, the contribution of Project-related traffic is expected to remain small relative to existing traffic volumes at the main highways. Therefore, impacts along the main roads and highway are anticipated to be minor and temporary.

In contrast, receptors located along the interior rural roads may experience more noticeable temporary increases in noise, particularly during the land preparation phase when truck movements are expected to be highest.

Given the existing low background noise environment in the Project area, construction traffic will result in impacts of moderate magnitude. However, this contribution will be temporary and reversible. Once construction activities cease, traffic volumes will return to baseline conditions.

With the implementation of good traffic management practices (e.g., routing controls, scheduling of deliveries during daytime hours, speed limits, and vehicle maintenance requirements), traffic-related noise impacts are expected to remain manageable and not significant in the long term.

### 8.5.2 Impacts Assessment Summary – Noise during Construction

A summary of potential impacts from noise emissions during construction and their effects on identified receptors are presented in the following table including suggested mitigation measures and residual impacts after implementation of the mitigations measures. The residual impacts will be re-assessed once the construction stage ESMP has been developed.

The EPC Contractors will apply the principle of GIIP and Best Practicable Means throughout the construction period to minimise noise emissions, taking into account the nature of the works, available technology and site-specific constraints and the presence of sensitive residential receptors close by, mainly H1 which is about 70 m away from the Project boundary to the south. BPM will have regard to local conditions and circumstances, the current state of technical knowledge and the financial implications of the measures. This will include, where reasonably practicable, selection of lower-noise equipment, regular maintenance of plant, avoidance of unnecessary engine idling, use of temporary acoustic screening where appropriate, careful programming of particularly noisy activities, optimisation of plant locations and implementation of workforce awareness measures. The design, selection, installation, maintenance and manner and periods of operation of plant and machinery, as well as the design, construction and maintenance of buildings and acoustic structures, will also be considered. Measures will be implemented in a manner compatible with safety and safe working conditions. These requirements will be incorporated into the CESMP and associated Construction Noise Management Plan.

Construction Noise Management Plans will be prepared as part of the CESMP to demonstrate the application of Best Practicable Means and GIIP. The plans will define the applicable mitigation, monitoring and management measures for construction activities, including procedures for planning higher-noise activities, monitoring construction noise and vibration where appropriate, recording and responding to community complaints, reviewing mitigation effectiveness and implementing corrective actions where required. The plans will be reviewed and updated as construction activities and conditions change.

Where practicable, noise insulation measures planned for operational aircraft noise will be implemented at an early stage of the Project to provide protection to affected residents from construction noise as well as subsequent operational aircraft noise.

The SPV will oversee implementation of the construction noise management plan through its environmental and social management system and contractor management procedures.

Given the temporary and progressive nature of construction activities, the primary approach to noise management is the application of source and pathway mitigation measures in accordance with Best Practicable Means and GIIP. Should construction monitoring or stakeholder feedback identify unforeseen noise impacts at particular sensitive receptors, additional site-specific mitigation measures will be considered as appropriate, taking account of the predicted noise levels, duration of exposure and the nature of the affected receptor.

**Table 8-12 Impacts Assessment Summary – Noise and Vibration during Construction**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Noise impacts due to onsite construction activities | Major | Nearest Residential Receptor (H1 – approx. 70 m from Project boundary) | High | Major | Moderate |
| | Moderate | Other nearby Residential Communities | High | Moderate | Minor |
| | | Project workers | Medium | Moderate | Minor |
| | | Commercial / Industrial facilities | Low | Minor | Negligible |
| Vehicular Noise | Minor | Other nearby Residential Communities | High | Moderate | Minor |
| | | Roadside receptors (including residential properties along access roads) | Medium | Minor | Negligible |

**Proposed Mitigation Measures**

Mitigation measures for noise from construction activities on residential areas

- Consideration of noise fences, or other methods to attenuate construction noise, will be required close to non-mobile equipment such as generators or at boundaries for key receptors that may have higher assessed impacts.
- The EPC Contractor will, at all times, carry out all work in such a manner as to keep any disturbance from noise to a minimum (by phasing noisy works).
- Acoustic covers on machine engines remain closed at all times as applicable.
- Where practical, electrically powered plants will be preferred to mechanically powered alternatives.
- All mechanically powered plants, diesel engine vehicles and compression equipment will be fitted with noise control equipment (exhaust silencers, mufflers) as available from the manufacturer.
- The highest noise emitting activities will be undertaken in a central site area, or within an enclosed structure. For example, fabrication of materials will be carried out away from the site boundaries and/or within structures.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Careful planning of the sequence of work in order to minimise the effects of noise to neighbours.<br>• Careful handling of materials and waste such as lowering rather than dropping items.<br>• Where practical, additional noise barriers /attenuation will be employed to ensure that the maximum noise level at 1m distance outside of the plant fence when all equipment is running do not exceed 70dB(A) and maximum noise level at 1m from open air installations do not exceed 85dB(A).<br>• Items of plants on site operating intermittently will be shut down in the intervening periods between use.<br>• Nighttime construction works will be minimsed to prevent noise impact at nearest noise sensitive receptors. Where unavoidable, night work permits (if applicable) will be obtained from the relevant authorities.<br>• Notice will be provided to the sensitive receptors (e.g. H1) as early as possible (minimum one-week notice) of periods of nosier works in regard to certain construction and commissioning activities and for how long such activities will be likely to last in accordance to the SEP.<br>• The impacted receptors will have access to a grievance mechanism in accordance with Project SEP in order to make any complaints regarding noise during the construction phase.<br>• A Noise Management Plan will be prepared for implementation by the EPC Contractor as part of the CESMP.<br><u>Mitigation measures for noise from construction activities on construction workers</u><br>• Identify workers who may be exposed to elevated noise levels (equal to or exceeding 80dB(A)) and brief them of occupational risks from noise exposure. Provide noise reduction PPE to workers. Respond to noise related complaints from workers or other nearby receptors and take corrective and preventive actions as necessary.<br>• Use hierarchy of control to reduce impacts on workers (in the order of physical removal of noise source, replace with quieter options, isolate workers from high noise sources, changes to work methodology, use of PPE.<br>• Operators of vibrating hand-held machinery (if any) will be provided with appropriate PPE (e.g. protective gloves and earmuffs/plugs) and be given suitable breaks from using such equipment to reduce the impacts of vibration.<br>• Workers potentially exposed to high noise and vibration shall be provided with appropriate PPE with respect to the occupational H&S risk assessment conducted for that activity.<br>• Workers potentially exposed to high noise and vibration shall be trained to identify situation when PPE is required to be worn and how to effectively utilize the PPE.<br>• These mitigation measures shall be incorporated into the applicable occupational H&S plan being developed by the EPC Contractor and implemented on-site | | | | | |

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Mitigation for impacts due to vehicular movement<br>• A traffic Management Plan will be prepared and implemented by the EPC contractor that will take into account all aspects including, noise and community health and safety factors.<br>• Limit unnecessary usage of vehicles/equipment - No idling - Equipment to be shut or throttled down when in intermittent use.<br>• Delivery vehicles will be prohibited from waiting outside the site with their engines running.<br>• Ensure any appropriate permits are in place for deliveries to the site and for any works performed outside normal working hours.<br>• Review vendor specifications and accept site plant & vehicles, in particular heavy vehicles, based on noise emissions (as far as practical).<br>• The movement of heavy vehicles during the night will be avoided wherever practical. | | | | | |

### 8.5.3 Operation Phase

The identification of aspects associated with the operation of the project and the receptors that may be potentially affected has been used to identify potential noise effects during the operational phase. These are presented in following table and discussed further later in this section.

**Table 8-13 Aspects and Impacts – Noise and Vibration during Operation**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| Air-side noise<br>Noise from arriving and departing aircraft on the flight paths as well as lateral noise effects on the surrounds. | Noise propagation | Both aspects are likely to influence the day and night-time noise climate at the immediate surrounds as well as at the settlements under and near to the flight paths. | Human and ecological receptors in zone of influence, including residences |
| Ground Noise<br>The ground running noise impacts due to taxiing on aprons, ground/auxiliary power units, engine testing, terminal associated operations | Noise propagation | | |
| Airborne traffic and ground running operational activities | Airborne and ground vibration | Existing structures closest to aircraft in flight and taxiways. Based upon data gathered in the UK ('Research on the Potential Noise Impacts on the Historic Environment by Proposals for Airport Expansion in England (2014)' | Nearby buildings including residential properties and other structures.<br><br>Any heritage sites in the surrounding area. |

### 8.5.4 Impacts from Increase in Noise Levels during Airport Operation

#### 8.5.4.1 Overview of Noise Prediction Modelling

This section presents the noise and vibration assessment for the proposed new Tashkent International Airport. The assessment has been undertaken to predict and evaluate the likely noise effects arising from aircraft operations, ground activities, and road traffic associated with the new airport. It also identifies appropriate mitigation measures in accordance with Good International Industry Practice (GIIP) and the requirements of the Government of Uzbekistan and international lenders.

Aircraft noise modelling has been undertaken iteratively to reflect the progressive development of the Project. Following completion of the initial ESIA assessment, additional technical work was undertaken in response to comments from the international lenders, discussions with Uzbekistan Airports and consultation with the Committee for Sanitary and Epidemiological Welfare and Public Health regarding establishment of the SPZ. This resulted in an updated Noise Assessment Addendum (Entran Ltd., June 2026), which refined the operational

assumptions and assessed additional operational mitigation scenarios to reduce community noise exposure and modelled predicted noise for revised opening year of 2030 and future assessment year of 2045. The findings of the Addendum supersede the corresponding aircraft noise assessment presented in the original Noise Assessment Report where applicable.

The final SPZ conclusion issued by the Committee for Sanitary and Epidemiological Welfare and Public Health confirms that the airport SPZ should be established based on the 60 dBA aircraft noise contour, rather than a fixed separation distance. This ESIA has therefore been updated to reflect the approved SPZ approach, together with the refined aircraft noise modelling presented in the Addendum.

A standalone Noise Assessment Report and Addendum (Entran Ltd, 2026) is provided as Appendix 4 to this ESIA and contains the full technical modelling database, assumptions, and contour outputs. This ESIA chapter summarises the key findings and places them within a wider environmental and social impact framework.

#### 8.5.4.2 Regulatory and Policy Framework

There are no Uzbekistan-specific noise standards for aircraft in flight. Therefore, the assessment references:

- Uzbekistan SanPiN No. 0339-16, and subsequent guidance issued by the Committee for Sanitary and Epidemiological Welfare and Public Health regarding establishment of airport SPZ;
- The approved SPZ conclusion establishing the airport SPZ based on the 60 dBA aircraft noise contour;
- IFC/World Bank Group General and Airport EHS Guidelines, which emphasis minimisation of aircraft noise through airport planning, operational procedures, flight-routing and land-use planning rather than numerical compliance limits for aircraft noise;
- EBRD Good International Practice relating to aircraft noise assessment and management; and
- WHO Night Noise Guidelines (2009), which have been used as a health-based reference when considering potential sleep disturbance.

The aircraft noise assessment has therefore been undertaken using internationally recognised modelling methodologies together with the applicable national SPZ requirements and international good practice to support the assessment of potential impacts, development of mitigation measures and long-term airport noise management.

The Project acknowledges the applicability of the IFC/WBG EHS Guidelines and the associated guideline values of 55 dBA daytime and 45 dBA nighttime at residential receptors. However, it is also recognised that airport developments represent a special category of infrastructure for which noise impacts are typically assessed using aviation-specific methodologies, land-use planning frameworks, and management approaches.

In international practice, including at airports financed and operated in accordance with international standards, aircraft noise management is generally based on a combination of operational controls, land-use planning measures, noise monitoring, sound insulation programmes, and application of the ICAO Balanced Approach, rather than strict compliance with generic environmental noise guideline values at all off-site receptors. This reflects the practical reality that aircraft operations can result in noise levels exceeding generic environmental noise guidelines in communities located near airport infrastructure, even where good international industry practice is being applied.

Accordingly, the ESIA considers the IFC/WBG EHS guideline values as important reference points for understanding potential impacts and informing mitigation requirements. The

assessment also incorporates aviation-specific modelling, SPZ requirements, international airport noise management practices, and the identification of feasible mitigation measures to reduce impacts as far as reasonably practicable. A Noise Management Framework will be prepared which will further define the mitigation hierarchy, monitoring requirements, and receptor-specific mitigation measures, including consideration of sound insulation and operational controls.

#### 8.5.4.3 Baseline Acoustic Environment

As outlined earlier, the baseline surveys confirm a rural acoustic environment, largely free of major transport or industrial noise sources. Day-time LAeq values generally range from 45–55 dB, with night-time LAeq values between 38–52 dB.

In some cases, night-time baseline noise slightly exceeds the SanPiN/IFC 45 dB guideline, driven by localised village activity rather than major infrastructure.

#### 8.5.4.4 Modelling Methodology

**Forecast Air Traffic and Modelling Approach**

Total annual aircraft movements are forecast to increase from approximately 78,600 Air Traffic Movement (ATM)s at the existing airport to approximately 110,400 ATMs in the opening year (2030) and approximately 274,000 ATMs by the future assessment year (2045). This represents a significant long-term growth trajectory consistent with the strategic role of the airport as a major regional hub. Out of the estimated ATMs, approximately 36% of forecast aircraft movements are expected during the night-time period; consequently, aircraft noise during the night represents the most sensitive assessment scenario.

Aircraft noise has been modelled using the Aviation Environmental Design Tool (AEDT v3g), with contour processing undertaken using IMMI software. AEDT is an internationally recognised aviation noise modelling platform developed by the U.S. Federal Aviation Administration and is widely used for airport environmental assessments. Ground operations noise, including taxiing aircraft, was modelled using IMMI (2025 version), applying ISO 9613-2 sound propagation algorithms. Road traffic noise associated with airport access was assessed using the Calculation of Road Traffic Noise (CRTN) methodology.

At the ESIA stage, certain operational parameters, including detailed flight procedures (SIDs and STARs), airspace design and airline-specific operating practices, had not yet been finalised. Accordingly, the assessment adopted a series of reasonable and, where appropriate, conservative assumptions to ensure that aircraft noise impacts were not underestimated. Following review by the international lenders, these assumptions were further refined through the Noise Assessment Addendum to better represent the intended airport operation while maintaining a precautionary approach.

The principal modelling assumptions include:

- Indicative arrival and departure routes developed from the current airport masterplan and existing operational practices, pending final airspace design;
- Standard instrument approach procedures and preliminary runway geometry;
- Updated aircraft fleet forecasts, including a conservative transition towards quieter next-generation aircraft by the 2045 assessment year;
- Differentiated runway utilisation, whereby larger (ICAO Code D and above) aircraft are preferentially allocated to the northern runway to reduce noise exposure at Yangitosh and other communities south of the airport;

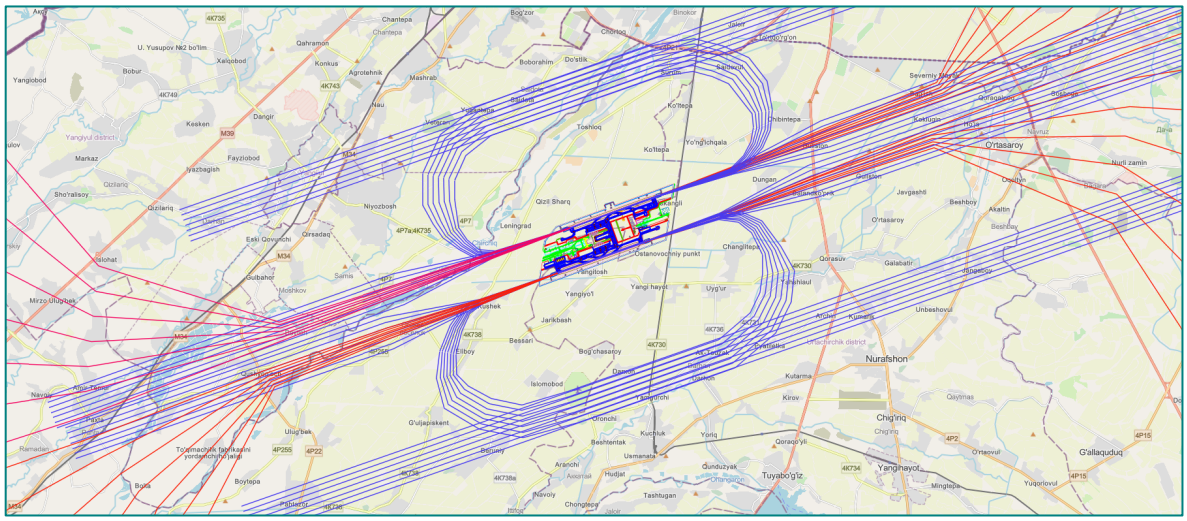
- Assessment of additional mitigation scenarios, including a partial night-time operational restriction on the southern runway and a southern noise bund for ground noise sources; and
- Conservative operational and dispersion assumptions where detailed operational information remains unavailable.

The refined assumptions were developed in consultation with Uzbekistan Airports and reflect the intended operational strategy for the airport. Nevertheless, they remain precautionary and provide a robust basis for environmental assessment.

As the airport design progresses, the aircraft noise model will be updated to incorporate the final airspace design, Standard Instrument Departures (SIDs), Standard Arrival Routes (STARs), aircraft fleet forecasts and operational procedures. The final modelling will confirm the operational aircraft noise contours, support implementation of the approved SPZ, and inform the Airport Noise Management Plan and long-term aircraft noise monitoring programme.

The assumptions listed above are considered precautionary and likely to overestimate long-term noise exposure relative to a scenario incorporating technological improvements and refined airspace optimisation. The modelling therefore provides a robust basis for impact assessment and mitigation planning within the ESIA.

Figure 8-14 illustrates the assumed aircraft track centre line tracks and sub-tracks to and from the two runways covering the area over which the noise contours lie. Arrivals routes are shown red and departure routes are shown blue.




Note: Red are arrival routes. Blue are departure routes

**Figure 8-14 Indicative Flight Tracks (Arrivals and Departures)**

As outlined in the modelling assumptions, a number of operational noise mitigation measures were identified through discussions with the Public Partner/Uzbekistan Airports, the UzNavigation Department and other relevant stakeholders. These measures were incorporated into the updated aircraft noise modelling to evaluate their effectiveness in reducing noise exposure at nearby communities. Two operational mitigation scenarios were therefore assessed:

- **Mitigation Scenario 1** – incorporates potential preferential runway use through runway differentiation, whereby larger (ICAO Code D and above) aircraft are allocated to the northern runway, together with a conservative future fleet transition to quieter next-generation aircraft and the inclusion of a 10 m southern noise bund to reduce ground noise.

- **Mitigation Scenario 2** – builds upon Mitigation Scenario 1 by additionally assuming a partial night-time operational restriction on the southern runway between 23:30 and 05:00 hours, with night-time operations preferentially directed to the northern runway (except in emergency or exceptional operational circumstances).

Further details about these scenarios are discussed in the Noise Assessment Addendum included in the Appendix 4.

#### 8.5.4.5 Predicted Noise Impacts

The following sections present the predicted noise impacts based on the original aircraft noise modelling and compare these with the refined modelling presented in the Noise Assessment Addendum. This comparison illustrates the influence of the revised operational assumptions and mitigation scenarios on the predicted aircraft noise contours and community noise exposure.

The daytime assessment for updated noise model is based on Mitigation Scenario 1. For the night-time period modelled as part of the Addendum, results are presented for both Mitigation Scenario 1 and Mitigation Scenario 2, with the latter incorporating an additional partial night-time operational restriction on the southern runway to further reduce community noise exposure.

**Aircraft Noise – Opening Year 2030**

Day-time (07:00–22:00) – Original Noise Assessment

The 55 dB LAeq contour extends into nearby settlements including Yangitosh (H1), Kushek (H3), Qorasuv and small parts of Yangiyo'l (H5), with predicted levels up to 60 dB in places.

Night-time (22:00–07:00) – Original Noise Assessment

Night-time LAeq reaches up to 62 dB in Yangitosh (H1) and exceeds 55 dB in Kushek (H3) and Qorasuv, above WHO thresholds for sleep disturbance. These represent high-significance impacts.

Day-time (07:00–22:00) – Updated Noise Assessment (Addendum)

Noise levels at Yangitosh (H1) immediately to the south are predicted to be up to 57dB, which is 3dB lower that reported in the original assessment.

Kushek (H3) and Qorasuv would be overflown by aircraft using the southern runway 07R/25L, with noise levels in the range of 55 to 58dB.

Night-time (22:00–07:00) – Updated Noise Assessment (Addendum)

*Mitigation Scenario 1*

Noise levels at the nearest part of Yangitosh immediately to the south are predicted to be up to 57dB nighttime, which is about 5dB lower than in the original assessment, but still above the WHO Night Noise Guidance level of 55dB.

Kushek and Qorasuv would be overflown by aircraft using the southern runway (07R/25L), with noise levels above in the WHO Night Noise Guidance level of 55dB and therefore mitigation is likely to be required. Several other villages would be overflown by aircraft using the southern runway, with lower noise levels also requiring consideration of mitigation. A key mitigation measure will be in review and potential modification of the detailed flight tracks to be developed prior to the airport operating.

*Mitigation Scenario 2*

Noise levels at the nearest part of Yangitosh immediately to the south are predicted to be up 55dB, which is about 7dB lower than in the original assessment, and within the WHO Night Noise Guidance level of 55dB.

Kushek and Qorasuv would be overflown by aircraft using the southern runway (07R/25L), with noise levels below the WHO Night Noise Guidance level of 55dB. Several other villages would be overflown by aircraft using the southern runway, with lower noise levels. A key mitigation measure will be design of the flight tracks so as to further reduce noise impacts to be developed during detailed design of the flight paths prior to the airport operating.

Updated noise contours for day and nighttime for the year 2030 are illustrated in Figure 8-15 to Figure 8-17

**Aircraft Noise – Future Year 2045**

Original Noise Assessment

Under the Future Year 2044 operational scenario as per the original assessment, forecast growth in ATMs is predicted to increase overall aircraft noise levels by approximately 4 dB compared to the 2029 scenario. During daytime periods, noise modelling indicated that Yangitosh may experience levels of up to 65 dB, while Kushek, Qorasuv and Balandko'prik are predicted to fall within the range of approximately 55–63 dB. These levels exceed commonly referenced preferred external living environment guidelines.

Night-time impacts, representing the most sensitive assessment period, are predicted to reach approximately 66 dB in Yangitosh and 62 dB in Kushek and Qorasuv. In addition, night-time noise levels above 45 dB are predicted across more than 40 additional surrounding villages and settlements, indicating a substantial spatial extent of operational aircraft noise influence during the critical night-time period.

These levels imply substantial risk of widespread sleep disturbance and associated health/economic impacts.

Updated Assessment as part of the Addendum

Noise contours for the year 2045 for day and nighttime hours are illustrated in Figure 8-18 to Figure 8-20.

Day-time (07:00–22:00) – Updated Noise Assessment (Addendum)

Noise levels at Yangitosh (H1) immediately to the south are predicted to be up to r 61dB, which is 4 dB lower than in the original assessment.

Kushek and Qorasuv would be overflown by aircraft using the southern runway 07R/25L, with noise levels in the range 55- 60dB.

Nighttime (22:00 to 07:00) – Updated Noise Assessment (Addendum)

*Mitigation Scenario 1*

Noise levels at the nearest part of Yangitosh (H1) immediately to the south are predicted to be up to 59 dB, which is 7dB lower than in the original assessment, which is 4dB above the WHO Night Noise Guidance level of 55dB.

Kushek and Qorasuv would be overflown by aircraft using the southern runway (07R/25L), with noise levels up to 60dB, 3dB lower than in the original assessment, however 5dB above the WHO Night Noise Guidance level of 55dB.

*Mitigation Scenario 2*

Mitigation Scenario 2 incorporates a partial night-time operational restriction on the southern runways, redistributing 5.5 hours of night-time aircraft movements to the northern runways. While this reduces aircraft noise exposure for communities south of the airport, it also increases noise exposure to the north. The assessment therefore considers whether this operational change introduces any new or materially greater noise impacts on communities north of the airport.

Noise levels at the nearest part of Yangitosh (H1), immediately south of the airport, are predicted to be up to 56 dB LAeq,9hr, approximately 10 dB lower than those predicted in the original assessment. Although this is marginally (approximately 1 dB) above the WHO Night Noise Guideline reference level of 55 dB, the WHO guideline is considered a health-based reference rather than a regulatory compliance standard for aircraft noise. The refined modelling demonstrates a substantial reduction in night-time noise exposure, with the approved SPZ continuing to be based on the 60 dBA aircraft noise contour. Further operational mitigation and ongoing noise management are discussed below.

Similarly, Kushek and Qorasuv would be overflown by aircraft using the southern runway (07R/25L), with noise levels up to 56dB, 7dB lower than in the original assessment. This marginally (i.e. 1dB) above the WHO Night Noise Guidance level.

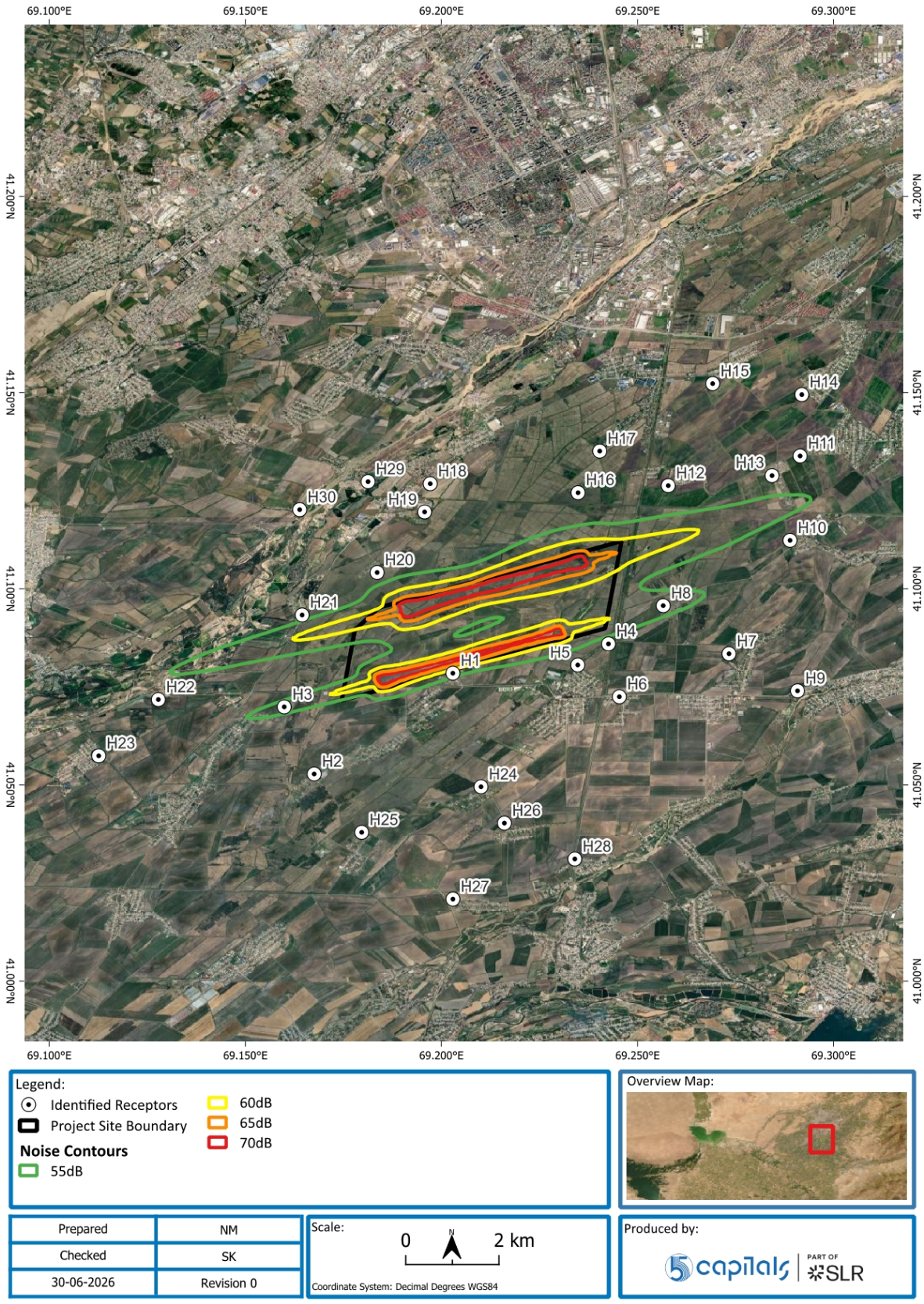



**Figure 8-15 Daytime $LAEq_{15hr}$ Noise Contours – Year 2030**

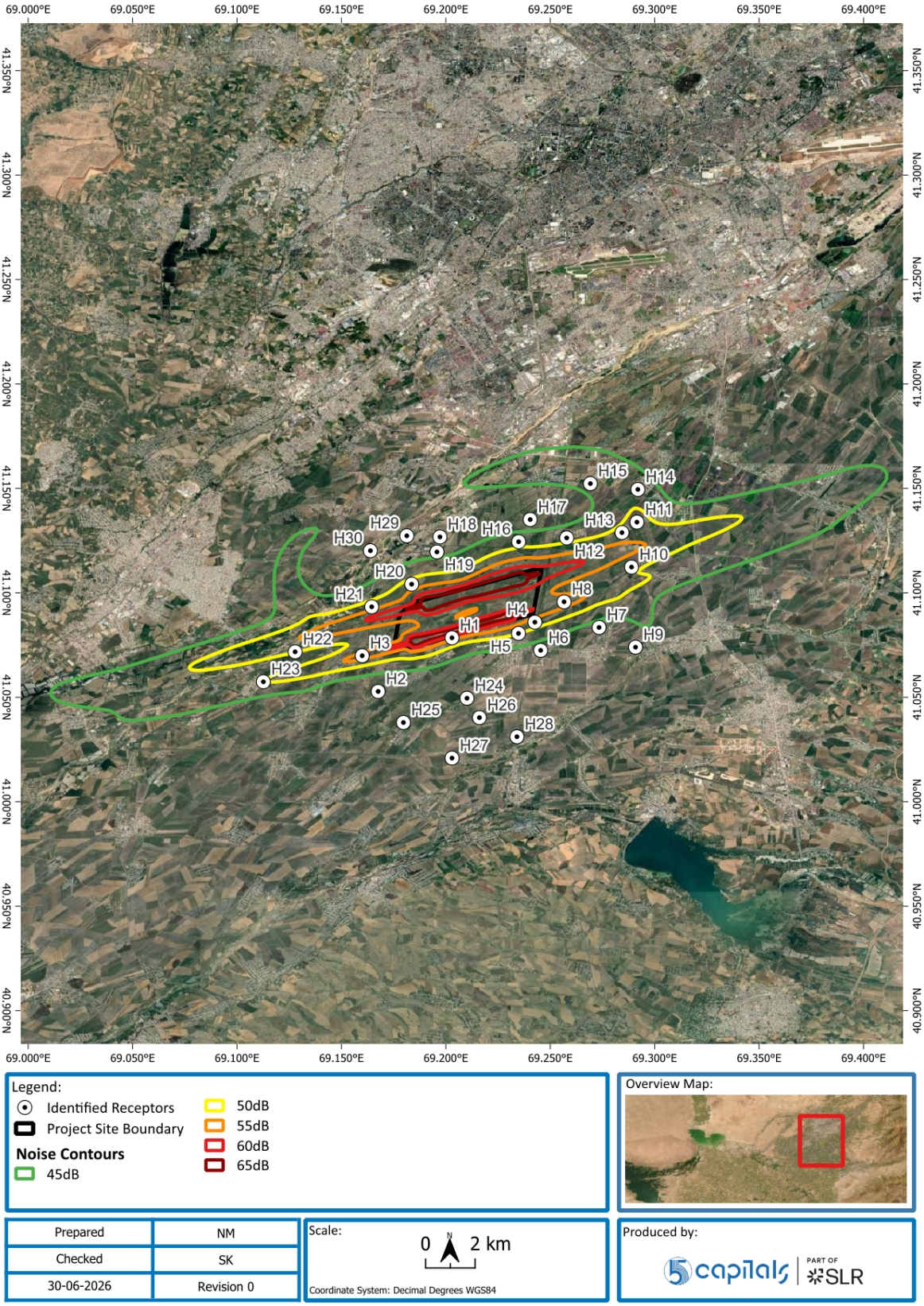



**Figure 8-16 Nighttime $LAEq_{9hr}$ Noise Contours (Mitigation 1) – Year 2030**

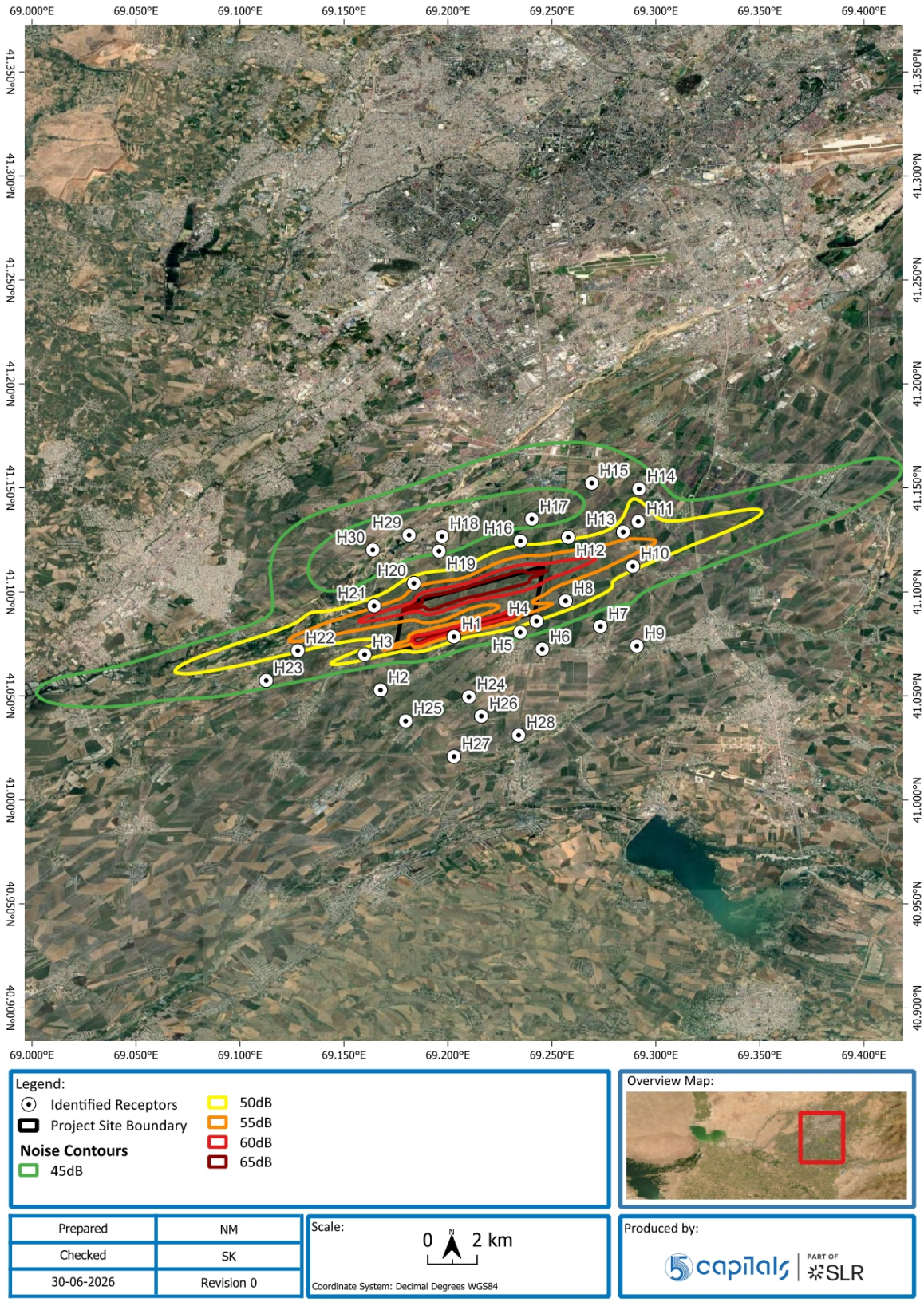



**Figure 8-17 Nighttime LAEq$_{9hr}$ Noise Contours (Mitigation 2) – Year 2030**

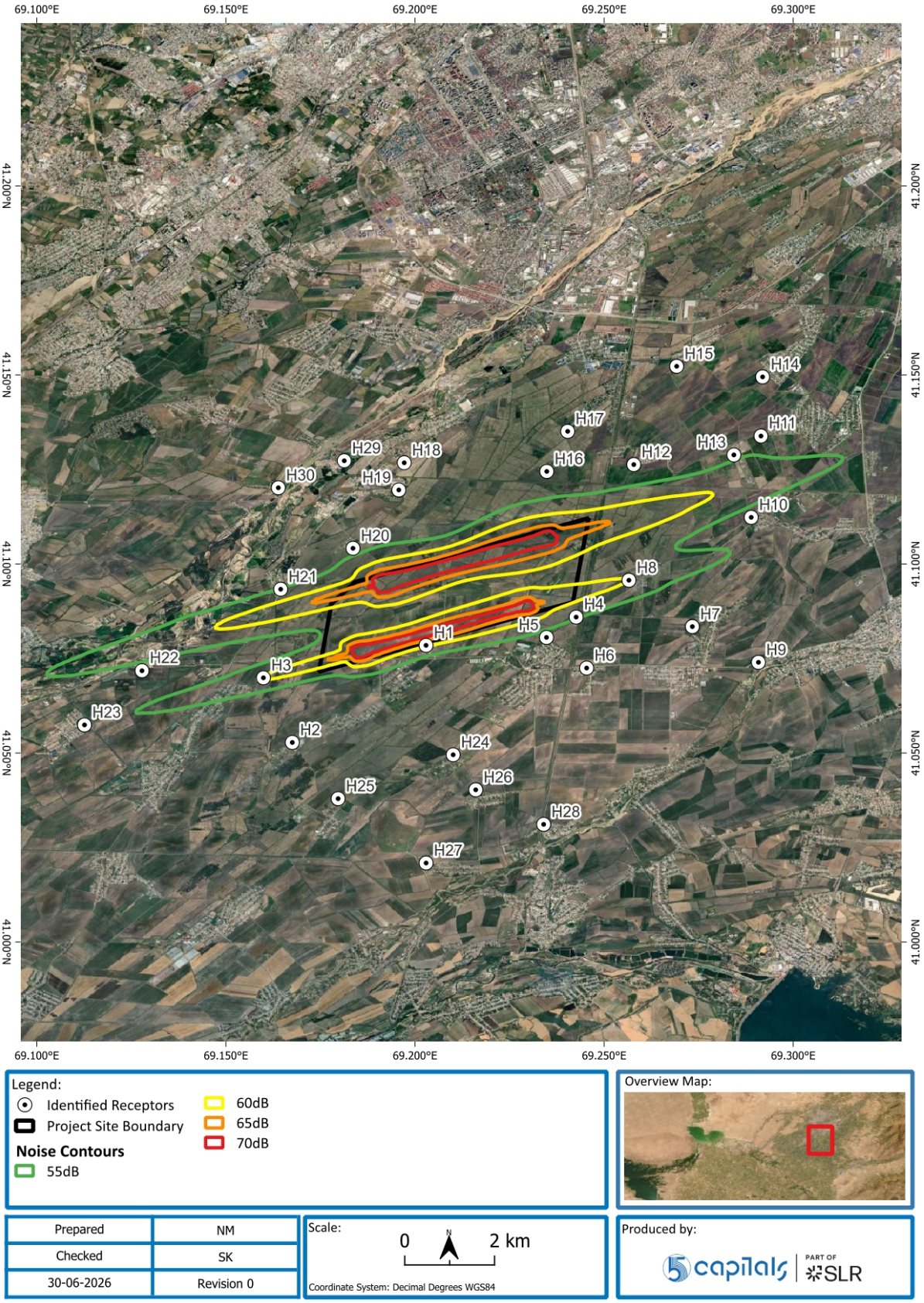



**Figure 8-18 Daytime $LAEq_{15hr}$ Noise Contours – Year 2045**

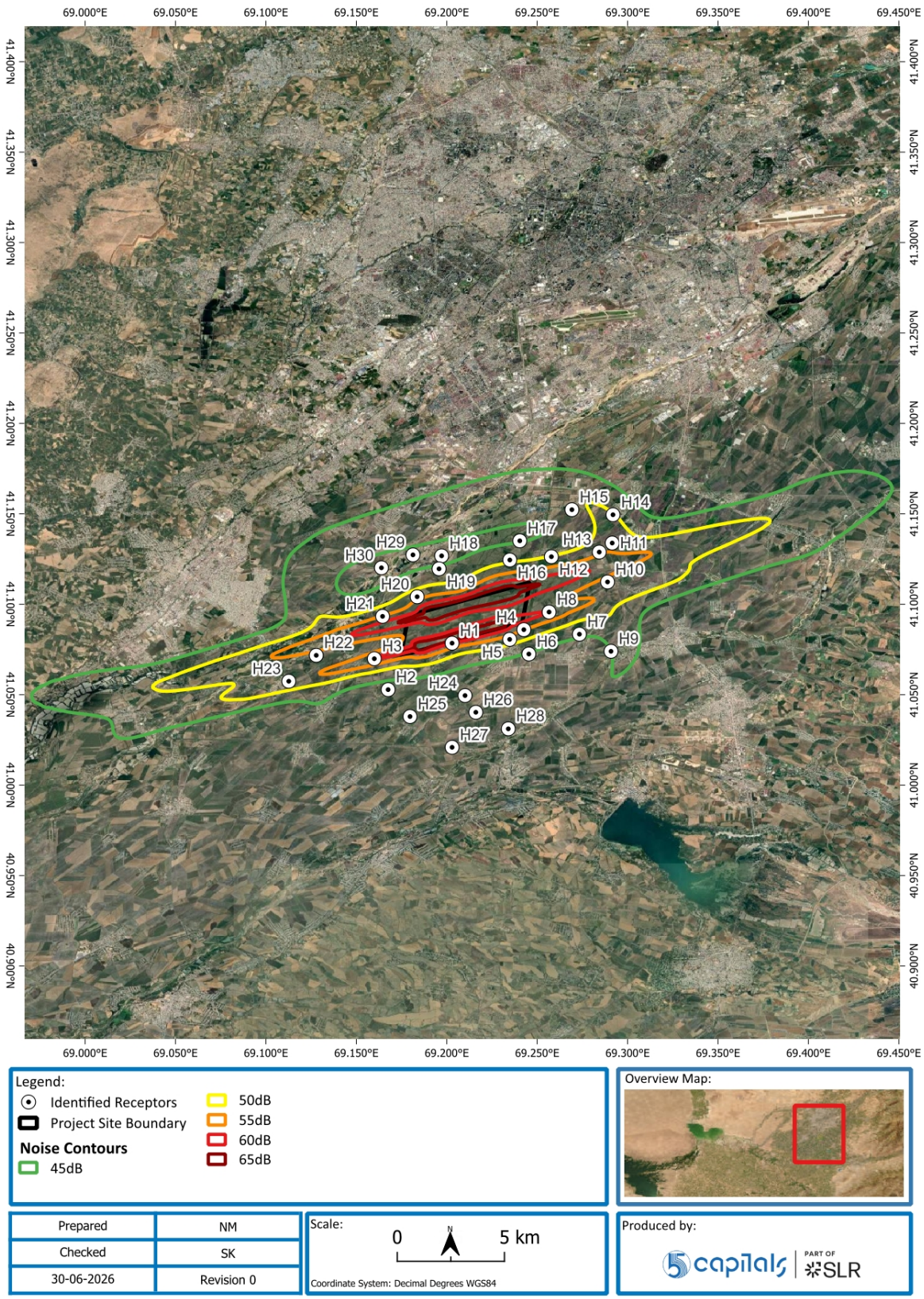



**Figure 8-19 Nighttime LAEq$_{9hr}$ Noise Contours (Mitigation 1) – Year 2045**

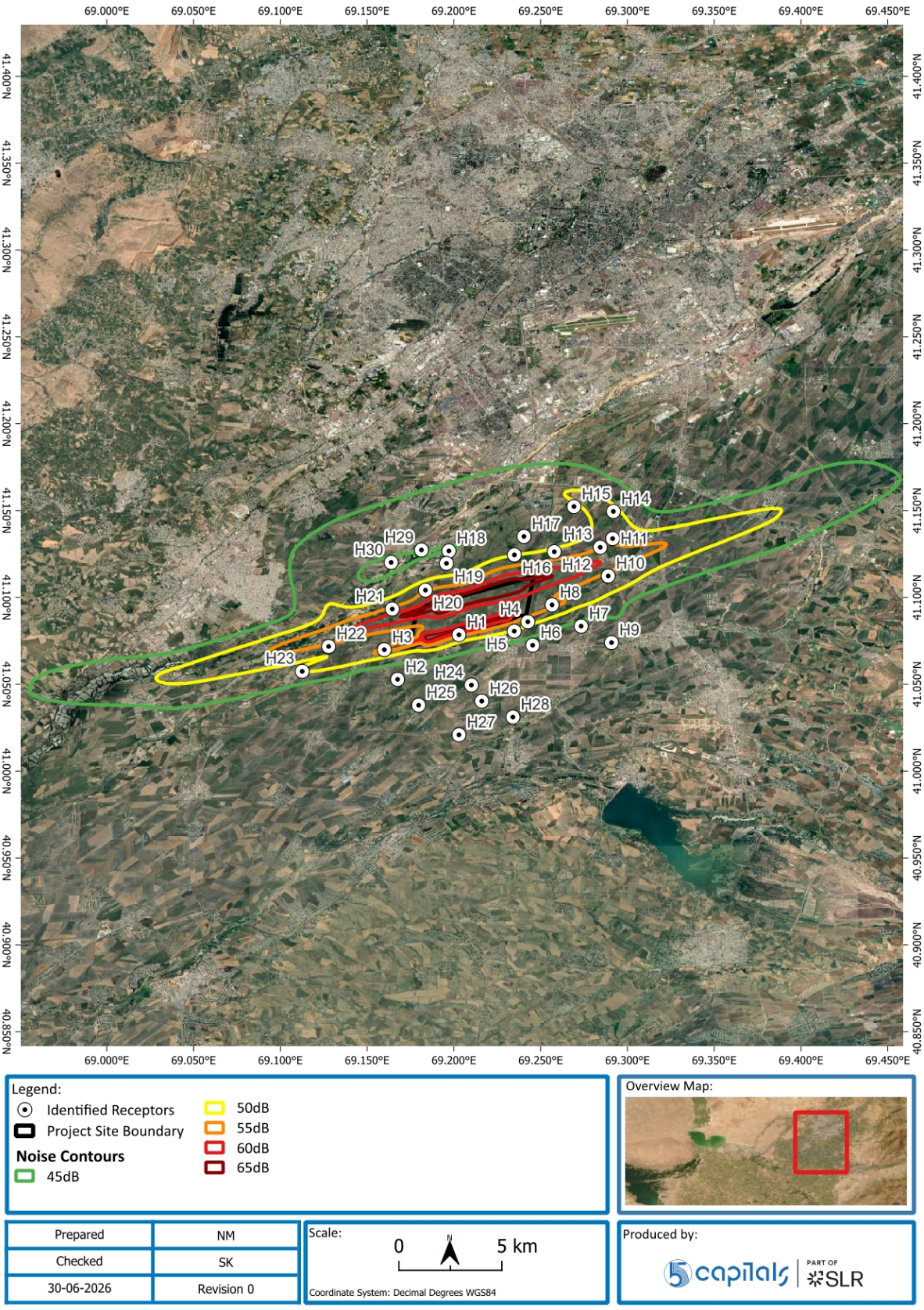



**Figure 8-20 Nighttime $LAEq_{9hr}$ Noise Contours (Mitigation 2) – Year 2045**

## Estimated Residential Exposure to Aircraft Noise

To provide an indication of community exposure under the refined aircraft noise assessment, Table 8-14 and Table 8-15 presents the estimated number of residential properties located within the principal aircraft noise contours for each of the assessed mitigation scenarios. The estimates are based on the refined noise modelling and are intended to illustrate the relative effectiveness of the different operational mitigation measures in reducing community noise exposure.

The estimates presented provide an indication of the relative extent of residential exposure under the different aircraft noise levels and mitigation scenarios. They have been derived from desktop GIS mapping and are not results of a detailed field verification or household survey. Accordingly, the estimated number of residential properties should not be regarded as final for the purposes of land acquisition, compensation, resettlement or noise mitigation planning. The final number and location of affected residential properties will be confirmed through detailed ground verification surveys, cadastral mapping and, where required, socio-economic surveys once the aircraft operational procedures, final flight paths, and detailed airport design have been finalised.

**Table 8-14 Estimated Residential Properties within Day-time Noise Contours**

| Day time Noise Contour | 2030 Mitigation Scenario 1 | 2045 Mitigation Scenario 1 |
|---|---|---|
| 65 dB | 0 | 0 |
| 60 dB | 0 | 0 |
| 55 dB | 150 | 370 |

**Table 8-15 Estimated Residential Properties within Night-time Noise Contours**

| Nighttime Noise Contour | 2030 Mitigation Scenario 1 | 2030 Mitigation Scenario 2 | 2045 Mitigation Scenario 1 | 2045 Mitigation Scenario 2 |
|---|---|---|---|---|
| 55 dB | 70 | 0 | 320 | 60 |
| 50 dB | >1,400 | 1,080 | >>3,000 | >3,000 |
| 45 dB | >8,500 | 7,780 | >>8,500 | >8,500 |

### Ground Operations Noise

In addition to airborne aircraft noise, the assessment considered noise generated from ground operations, including aircraft taxiing, apron activity and engine ground running. Taxiing aircraft are predicted to generate localised increases in noise levels along sections of the airfield perimeter, particularly in areas closest to the runway and taxiway alignments.

A 3-metre-high solid noise barrier has been incorporated into the design as embedded mitigation to reduce direct line-of-sight noise propagation toward nearby receptors. With this mitigation in place, predicted increases in noise levels at the most affected receptors (including H1, H4, H5 and H20) remain limited, generally below 3 dB relative to baseline conditions. Such increases are typically considered to represent minor perceptible changes.

Overall, ground operations noise is predicted to be localised and secondary in magnitude when compared with airborne aircraft noise.

**Secondary Vibration (Ground-Borne Response to Aircraft Noise)**

This section assesses the potential for perceptible secondary vibration effects within residential properties located in proximity to the proposed airport. Secondary vibration refers to vibration-like effects within buildings (such as window, door or lightweight structural element rattling) caused by high airborne noise levels rather than direct ground-borne vibration. The assessment focuses specifically on aircraft operations associated with each runway.

To evaluate the likelihood of such effects, an indicative 90 dB Sound Exposure Level (SEL) contour was modelled for a representative Boeing 767-300 aircraft under take-off and landing conditions for each runway. The 90 dB SEL criterion is commonly used as a screening threshold for the potential onset of perceptible secondary vibration effects in lightweight residential structures. The resulting contours identify areas where aircraft noise events may reach or exceed this level.

The modelling indicates that five residential receptor areas (H1, H3, H4, H5 and H8) fall within the 90 dB SEL contour. Properties within these areas may therefore experience occasional perceptible secondary effects, such as window or fitting rattling, during high-noise aircraft events. These effects would be intermittent in nature and associated with specific aircraft movements rather than continuous exposure.

The likelihood and frequency of such occurrences will depend on final runway utilisation patterns, aircraft fleet mix and operational procedures. As fleet modernisation typically results in quieter aircraft over time, the assessment represents a precautionary scenario.

Opportunities for mitigation are limited in this scenario. The most feasible interventions may consist of remedial structural works to reduce the transmission of vibration within affected properties.

Overall, secondary vibration effects are predicted to be localised to a limited number of receptors situated closest to the runway alignment and are not expected to extend widely across the surrounding area.

**Road Traffic Noise**

Noise associated with airport-related road traffic on the main access road and internal service roads has also been assessed. Forecast traffic flows indicate that noise levels at surrounding residential and roadside receptors will remain below applicable guideline values. This is primarily due to moderate traffic volumes, the separation distances between road corridors and settlements, and the absence of high-density residential development immediately adjacent to access routes.

Accordingly, operational road traffic noise is not predicted to result in significant adverse effects.

**Mitigation Strategy**

Mitigation measures have been developed in accordance with the ICAO Balanced Approach to Aircraft Noise Management, IFC guidance and international good practice. The strategy integrates operational controls, airspace design, infrastructure measures and land-use planning controls.

Operational and airspace measures include optimisation of flight paths to reduce overflight of densely populated settlements where practicable, establishment of Noise Preferential Routes (NPRs) with defined monitoring corridors, implementation of Continuous Descent Approach (CDA) procedures, and evaluation of runway use preferences to minimise exposure at the most affected communities.

Operational controls may include redistribution of some night-time movements to daytime periods where feasible, application of restrictions or differential charging for noisier aircraft

types during sensitive periods, and the introduction of a night-time noise charging framework to incentivise quieter fleet operations.

Land-use and physical mitigation measures include potential relocation of properties within areas subject to highest predicted exposure, provision of building noise insulation for dwellings exceeding night-time guideline levels following operational mitigation, and the construction of additional noise barriers or earth bunds where technically feasible. Final operational noise contours will also inform planning controls to restrict incompatible future development within defined exposure zones.

**Residual Impacts**

Despite the implementation of embedded and additional mitigation measures, night-time aircraft noise remains the principal environmental constraint associated with airport operation, particularly under the 2044 forecast scenario. The extent of residual impact will depend on finalised airspace design, aircraft fleet composition, uptake of quieter aircraft technologies and implementation of operational controls.

Ground operations noise, road traffic noise and construction noise are predicted to remain manageable and not significant with the proposed mitigation measures in place.

**Overall Conclusion of Findings from Modelling**

The refined aircraft noise assessment confirms that airborne aircraft noise will represent the dominant source of operational noise impact for surrounding communities, particularly during the night-time period in the future assessment year. While ground, road traffic and construction noise impacts are limited and controllable through standard mitigation, aircraft noise requires a coordinated and long-term management approach combining airspace optimisation, operational restrictions, infrastructure mitigation and land-use planning measures.

Following consultation with Uzbekistan Airports, the UzNavigation Department, the Committee for Sanitary and Epidemiological Welfare and Public Health, the aircraft noise assessment was refined to evaluate additional operational mitigation measures, including the consideration for preferential runway use, a conservative transition to quieter next-generation aircraft, a southern noise bund for ground noise, and a partial night-time operational restriction on the southern runway. The refined modelling demonstrates a substantial reduction in predicted community noise exposure compared with the original assessment, particularly for the nearest communities such as Yangitosh to the south of the Project.

The Committee for Sanitary and Epidemiological Welfare and Public Health has confirmed that the airport SPZ will be established based on the 60 dBA aircraft noise contour, providing the framework for future land-use planning and management of noise-sensitive development surrounding the airport. The refined aircraft noise modelling demonstrates a substantial reduction in community noise exposure compared with the original assessment and indicates that no additional physical displacement is currently anticipated beyond that already required for the Project footprint. Nevertheless, a limited number of existing residential properties are predicted to remain above the WHO Night Noise Guideline reference level of 55 dB LAeq,9hr under the future operational scenarios. While the WHO guideline is a health-based reference rather than a regulatory compliance standard for aircraft noise, these residual impacts will be addressed through the implementation of the Project's Noise Management Plan, including operational noise management measures and, where appropriate, physical mitigation such as residential acoustic insulation. The detailed mitigation strategy is presented later in this chapter and will be refined as the aircraft operational procedures, flight paths and airport design are finalised.

With appropriate implementation of these measures, the Project can align with international lender standards and recognised best practice for airport noise management.

In considering the wider regional context, it is noted that a 10 km radius from the existing Islam Karimov Tashkent International Airport encompasses a substantial proportion of the dense urban core of Tashkent to the north and east, as well as expanding residential areas to the south and west. The estimated population density within this 10 km radius is approximately 5,000 to 6,000 people per km², indicating that a large urban population is currently exposed to aircraft noise associated with the existing airport's operations.

The relocation of primary aviation activities to the proposed airport site, which is situated in a comparatively less densely populated area, is therefore expected to redistribute aircraft noise exposure away from the highest-density urban zones. While certain rural and peri-urban communities in proximity to the proposed airport will experience increased aircraft noise, the number of people benefiting from reduced overflight and lower aircraft noise exposure in central Tashkent is anticipated to substantially exceed the number experiencing new or increased exposure.

Overall, although significant localised impacts are predicted at specific receptors, particularly during night-time operations in the future assessment year, the strategic relocation of airport operations is expected to result in a net regional noise benefit when considered at the metropolitan scale. Continued refinement of airspace design, fleet composition and mitigation implementation will be critical to ensuring that noise impacts are managed in accordance with international lender standards and best practice.

### 8.5.5 Impacts Assessment Summary – Noise and Vibration during Operation

A summary of potential impacts from noise generation during operation and their effects on identified receptors are presented in following table including suggested mitigation measures and residual impacts after implementation of mitigations measures.

**Table 8-16 Impact Assessment Summary – Noise and Vibration during Operation**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Noise from daytime aircraft operation – opening year 2029 | Minor | Residential communities | High | Moderate | Minor |
| | | Project workers | Medium | Minor | Negligible |
| | | Commercial / Industrial facilities | Low | Minor | Negligible |
| Noise from nighttime aircraft operation – opening year 2029 | Moderate | Residential communities | High | Moderate | Minor |
| | | Project workers | Medium | Moderate | Minor |
| | | Commercial / Industrial facilities | Low | Minor | Negligible |
| Noise from daytime aircraft operation – year 2044 (worst case) | Moderate | Residential communities | High | Major | Moderate |
| | | Project workers | Medium | Moderate | Moderate |
| | | Commercial / Industrial facilities | Low | Minor | Minor |
| Noise from nighttime aircraft operation – year 2044 (worst case) | Major | Residential communities | High | Major | Moderate |
| | | Project workers | Medium | Moderate | Minor |
| | | Commercial / Industrial facilities | Low | Moderate | Minor |
| Noise from ground operations | Moderate | Residential communities | High | Moderate | Minor |
| | | Project workers | Medium | Moderate | Minor |
| | | Commercial / Industrial facilities | Low | Minor | Minor |
| Secondary vibration from aircraft noise | Moderate | Nearby residential communities (buildings) | High | Moderate | Moderate |

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Road traffic noise | Minor | Residential communities | High | Moderate | Minor |
| | | Roadside receptors | Medium | Minor | Negligible |
| | | Commercial / Industrial facilities | Low | Negligible | Negligible |

**Proposed Mitigation Measures (see detailed modelling report in Appendix for detailed mitigation measures)**

Mitigation measures for aircraft noise (airborne noise)

- A dedicated airport operational Noise Management Plan will be developed and implemented. Prior to that a Noise Management Framework (NMF) is being prepared separate to the ESIA to guide the detailed management plan.
- Transition to aircraft compliance with latest ICAO noise certification standards
- Encourage airlines to operate quieter aircraft types
- Periodically update fleet forecast and refine noise modeling to reflect actual fleet mix.
- Consider restrictions or phased bans on the noisiest aircraft types
- Optimisation of turning points and track dispersion will be considered to reduce exposure over settlements
- Noise Preferential Routes for departure will ne defined. These are typically used to set corridors 1.5km either side of the preferred route centre-line within which departing aircraft should fly up to a given height.
- Concentrating arrivals over densely populated areas will be avoided where operationally feasible.
- Where operationally safe and approved by the relevant air navigation service provider, aircraft will be encouraged to intercept the Instrument Landing System (ILS) as close to the airport as practicable, thereby maintaining higher altitudes for longer and reducing noise exposure over surrounding communities
- Undertaking a dedicated airspace design study will be considered, focused on minimising population exposure.
- Evaluate opportunities to redistribute a proportion of night-time aircraft movements to daytime periods, where operationally feasible and taking into account operational, commercial and regulatory considerations.
- Consider introducing operational restrictions or preferential operating arrangements for noisier aircraft during the night period, where consistent with applicable regulatory requirements and airport operational needs.
- Evaluate the implementation of noise-related charging or other economic incentives to encourage the use of quieter aircraft and support fleet modernisation, subject to the applicable regulatory framework.
- Where operational noise assessments or monitoring identify persistent significant impacts, consider property-specific mitigation measures, including acoustic insulation or, where justified and in accordance with applicable national legislation and Project policies, property acquisition or relocation for affected residential properties.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Mitigation measures for ground operation noise<br>• Incorporate a 3 m high solid noise barrier along selected airfield boundaries as part of the embedded Project design.<br>• Consider additional noise bunds or barriers along the southern boundary, where appropriate, to reduce aircraft ground noise affecting nearby communities such as Yangitosh and Yangiyo'l.<br>• Optimise, where practicable, aircraft taxi routes and minimise engine ground running in areas closest to sensitive receptors.<br>• Restrict, where practicable, engine ground running and engine testing to daytime hours (e.g. 08:00–13:00) and only when operationally necessary.<br>• Implement an operational ground noise monitoring programme to verify noise performance and support ongoing noise management and adaptive mitigation, where required.<br>Mitigation Measures for Secondary Vibration<br>• Identify properties within 90 dB SEL contour.<br>• Consider property-specific mitigation where required (e.g. improved glazing, window reinforcement).<br>• Include affected properties in any insulation or relocation programme where applicable | | | | | |

## 8.6 Operational Noise Mitigation Strategy

The Project will aim to implement a structured and hierarchical approach to operational noise mitigation in accordance with international good practice, including the ICAO Balanced Approach to Aircraft Noise Management. The mitigation strategy has been refined based on updated noise modelling and focuses on addressing the most significant impacts, particularly night-time noise in the 2045 scenario, where the largest extent of exceedances is predicted.

The aircraft fleet in 2045 has been revised to allow to the future transition to newer aircraft. The allocation of aircraft to the two runways has been refined to mitigate noise impacts to the south. A noise barrier has been added on the south boundary to reduce noise propagation to the south. Further details will be included in the Operational Noise Management Framework (NMF) document that will be prepared separate to the ESIA.

### 8.6.1 Operational Controls (Source-Level Mitigation)

Operational mitigation measures represent the primary means of managing aircraft noise and are the preferred approach for reducing community exposure at source. These measures focus on minimising noise generation, where feasible, through airport operational procedures, flight management practices and ongoing monitoring, thereby reducing the need for receiver-based mitigation measures such as building insulation.

The implementation, monitoring and enforcement of operational noise controls will be the responsibility of the Project Company, acting through the Airport Operator, who will be responsible for ensuring that airport operations are managed in accordance with applicable national aviation regulations, international aviation requirements and the environmental commitments set out in the ESIA and the Project ESMS. The Airport Operator will establish an Airport Noise Management Programme that will define operational procedures, monitoring requirements, reporting arrangements and mechanisms for continual improvement of aircraft noise performance throughout the operational life of the airport.

Although individual aircraft operations remain under the control of aircraft operators and air traffic management authorities, the Airport Operator will work collaboratively with the relevant aviation authorities, airlines and air navigation service providers to promote compliance with airport noise management procedures and encourage the adoption of best international practices for aircraft noise reduction. This will include regular review of aircraft noise monitoring data, investigation of noise complaints, engagement with stakeholders, and periodic assessment of opportunities to further reduce operational noise where practicable.

#### 8.6.1.1 Runway Use Optimisation (Runway Preference)

Larger and typically noisier aircraft (ICAO Code D and above) will be considered, if feasible, to be preferentially allocated to the northern runway. This measure has been modelled and is predicted to reduce noise levels in the most affected southern communities (notably Yangitosh) by approximately 6 dB.

#### 8.6.1.2 Airspace and Flight Procedure Design

Detailed flight paths and operational procedures will be developed prior to airport opening (planned by 2028) to minimise overflight of sensitive receptors, particularly during night-time operations. These measures will be designed into the Project prior to operations to maximise effectiveness.

#### 8.6.1.3 Fleet Transition to Quieter Aircraft

The Project assumes a progressive transition toward newer generation aircraft, which are inherently quieter. By 2045, approximately 79% of the fleet is expected to consist of next-

generation aircraft, contributing to reduced overall noise exposure compared to a static fleet scenario.

### 8.6.2 Physical Mitigation Measures

#### 8.6.2.1 Ground Noise Attenuation (Noise Bund)

A noise bund along the southern boundary of the airport will be considered, to reduce ground-based noise sources such as taxiing and engine operations. While this measure has limited influence on aircraft airborne noise, it contributes to reducing localised ground noise impacts.

### 8.6.3 Land Use Planning and Development Control

The Project will work with relevant authorities to implement land use planning controls to prevent the introduction of new noise-sensitive receptors within areas exposed to elevated aircraft noise levels.

- Refined noise contours will be used to guide planning decisions.
- New residential or sensitive developments will not be permitted within areas exceeding 55 dB LAeq,day and 45 dB LAeq,night unless appropriate mitigation is incorporated.
- National planning instruments (e.g. SanPiN No. 0339-16) will be applied to enforce compatible land use zoning.

### 8.6.4 Building-Level Noise Mitigation (Acoustic Insulation Programme)

To assess the practicality of implementing building-level noise mitigation, technical condition surveys were undertaken by a qualified civil surveying company based in Tashkent for five representative residential properties (Houses 11, 19, 28, 30 and 34) located within the area predicted to experience the highest operational aircraft noise exposure. The objective of the programme is to reduce internal noise levels to acceptable standards for residential use, including during night-time periods. Acoustic insulation is recognised as a secondary (last-resort) mitigation measure, applied where operational and planning controls are insufficient. It is effective in reducing indoor noise exposure but does not mitigate outdoor noise levels.

The surveys comprised visual and structural inspections, assessment of wall construction, condition of roofs, windows and doors, and preparation of conceptual refurbishment drawings where required. The investigations were undertaken specifically to determine whether the buildings could accommodate acoustic improvement. Detailed survey reports are presented in Appendix 5.

The surveys indicate that the assessed dwellings are generally of conventional single-storey masonry construction, comprising adobe or clay brick external walls with timber roof structures supporting corrugated roofing materials. Although the buildings vary in age and condition, the inspections concluded that the principal load-bearing elements of the surveyed buildings remain structurally serviceable and suitable for continued occupation. Most of the observed defects are superficial and relate to localised deterioration of plaster finishes, weathering and moisture damage rather than structural instability.

The structural assessments classify the residential buildings as being in generally good or serviceable condition, with estimated physical deterioration typically between approximately 15–20% for the main residential structures. House 11 exhibited slightly greater localised deterioration (approximately 31–40%) associated with plaster and surface weathering; however, the report concludes that the building retains its load-bearing capacity and remains structurally sound following routine repairs. Temporary or ancillary structures at some properties exhibit higher levels of wear (approximately 30–40%) but these do not affect the suitability of the principal residential buildings for acoustic improvements.

Based on the findings of the structural surveys, there are no engineering constraints that would prevent the installation of typical residential acoustic mitigation measures. The buildings are considered suitable for upgrades such as replacement of existing windows with acoustically-rated glazing, installation of improved external doors and seals, enhancement of roof and ceiling insulation, sealing of air leakage paths, and associated ventilation measures were required to maintain indoor comfort with windows closed. Any minor maintenance works identified during the inspections (e.g. repair of plaster, localised masonry repairs or moisture remediation) should be completed before installation to maximise the long-term performance of the acoustic treatments.

Overall, the building surveys demonstrate that the representative dwellings are technically suitable to accommodate building-level acoustic insulation measures. Consequently, should the final operational noise assessment identify residential properties exceeding the adopted night-time criterion, implementation of an acoustic insulation programme is considered feasible and represents a practical mitigation measure for reducing internal aircraft noise exposure. The detailed scope of property-specific improvements would be confirmed through individual pre-installation surveys undertaken as part of the future mitigation programme.

Photographs illustrating the general conditions of the surveyed buildings are provided in Figure 8-21.

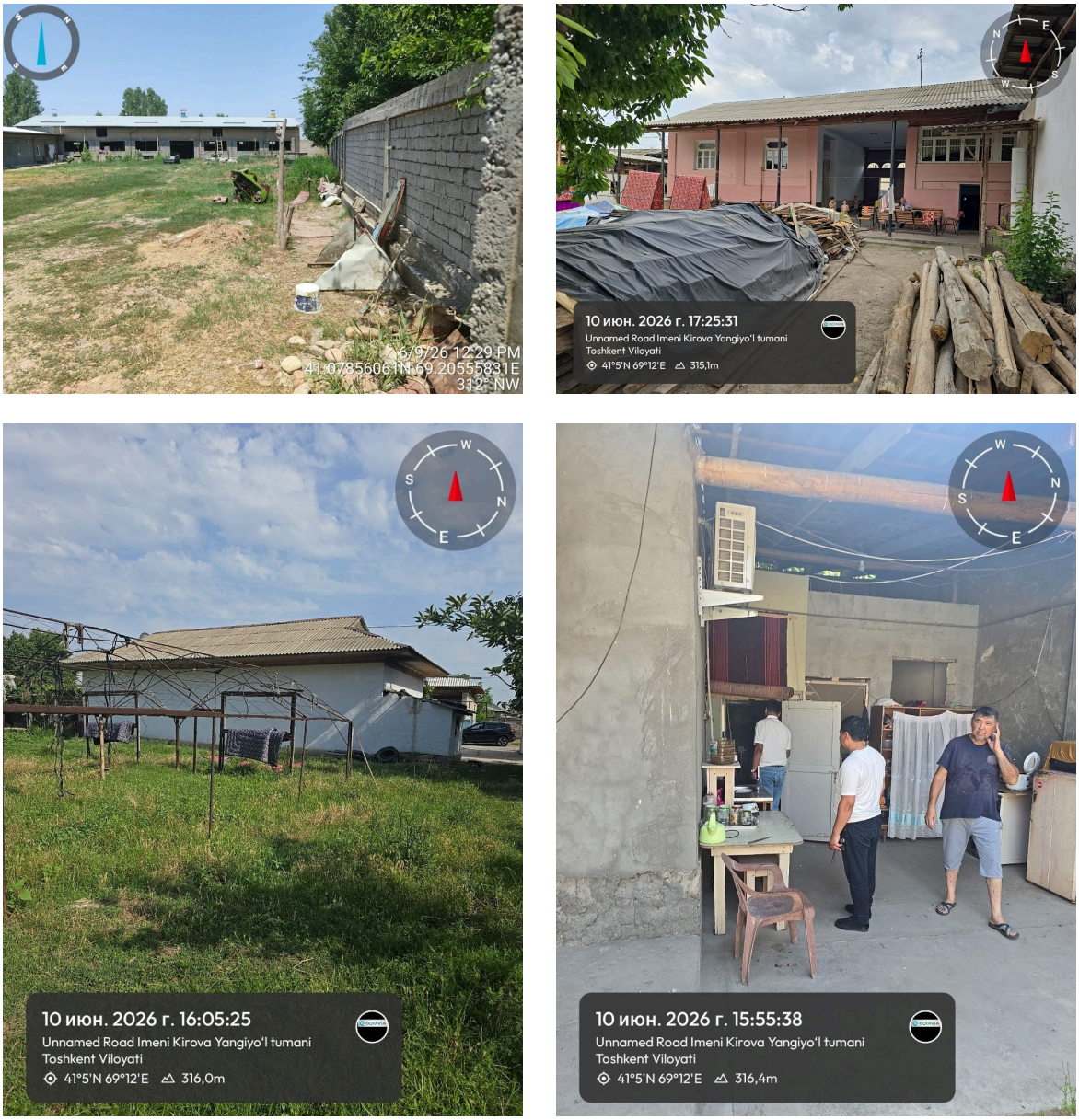



**Figure 8-21 Conditions of Dwellings Selcted for the Building Acoustics Feasibility Survey**

### 8.6.5 Monitoring and Adaptive Management

A comprehensive noise monitoring programme will be implemented during operations to verify predicted impacts and effectiveness of mitigation. This will include:

- Installation of permanent monitoring stations at representative sensitive receptors
- Periodic comparison of measured and predicted noise levels
- Implementation of additional mitigation measures where exceedances are identified

This will be supported by an adaptive management framework to ensure ongoing compliance and continuous improvement. The Committee for Sanitary and Epidemiological Welfare and Public Health will be responsible for ensuring and monitoring the noise levels outside the airport premises are in compliance with the SPZ requirements.

### 8.6.6 Stakeholder Engagement

The Project will maintain ongoing engagement with affected communities, including:

- Disclosure of monitoring results
- Operation of a grievance mechanism for noise-related concerns
- Periodic review of mitigation effectiveness

## 8.7 Monitoring

The EPC Contractor and the airport operating company TGV will need to undertake noise monitoring on a periodic basis during both the construction, commissioning and operational phases of the project respectively. The minimum expected requirements for the noise monitoring are outlined in the table below. The final monitoring methodology with specific monitoring details (i.e. locations, frequencies, durations, parameters etc.) will be developed in the specific 'Environmental Monitoring Plan' as part of the respective construction or operational phases ESMS.

**Table 8-17 Noise Monitoring Requirements**

| Monitoring | Parameter | Frequency & Durations | Monitoring Location |
|---|---|---|---|
| **Construction & Commissioning** | | | |
| Day time noise<br>Nighttime noise (if works are ongoing) | LAeq<br>LAmax | Weekly for 15 minutes periods at each location | Baseline receptor locations NS1, NS3, NS4 |
| **Operation** | | | |
| Day time aircraft noise exposure | LAeq,15hr | Continuous monitoring of LAeq, 15h (07:00–22:00) | At communities near flightpaths |
| Nighttime aircraft noise exposure | LAeq,9hr | Continuous monitoring of LAeq, 9h (22:00–07:00) at all noise-sensitive receptors | |
| Tracking of aircraft operations | Monitoring compliance of aircraft with Noise Preferential Routes (NPRs) once established | Ongoing | Flight path |
| Secondary vibration | Monitor SEL events ≥90 dB SEL to confirm vibration impacts | Ongoing | Near runways |
| Monitoring of compliance with any operating restrictions | Night-time operating bans or differential charges for noisier aircraft | Ongoing | - |

**Note:** All monitoring shall be conducted in accordance with the following: '*sound measurement equipment conforming to the class 1 or class 2 specifications set out in IEC 61672-1:2013, with associated certified laboratory calibration valid within 24 months, and with field calibration checked immediately before and after measurements using an acoustic calibrator conforming to the class 1 (for class 1 measurement equipment) or class 2 (for class 2 measurement equipment) specifications set out in IEC 60942:2017, with associated certified laboratory calibration valid within 12 months. During measurements, the sound measurement microphone shall be fitted with a windshield conforming to the manufacturer's recommendations for outdoor survey measurements in wind conditions not exceeding 5 ms-1, and any associated adjustments required to the response of the measurement equipment shall be made in accordance with the manufacturer's instructions.*

In the event of a recorded exceedance during noise monitoring or upon receipt of complaints/grievances related to noise, a process to investigate and take appropriate corrective actions will be outlined in the overarching 'Environmental Monitoring Plan.

During consultation meeting with Uzbek Airports authority on 30 April 2026 (also attended by the lenders) it was informed that a comprehensive air quality and noise monitoring system be implemented for the new airport to ensure compliance with all relevant local and lender's standards and limits.

**Occupational H&S Noise Monitoring**

Workplace risk assessment will be carried out in advance of project operations to identify workers at risk of heightened exposure to noise levels exceeding regulatory thresholds. The noise risk assessment will be reviewed in the event of a significant change in the work to which the workplace noise assessment relates or if there is reason to suspect that the risk assessment is no longer valid.

Where noise or hearing related grievances are received form the workforce, these shall be further investigated and as applicable hearing tests to applicable workers will be necessary.

# 9.0 Terrestrial Ecology and Birds

This chapter considers and assesses the potential impacts that may occur as a result of the Project's construction and operational activities including associated facilities on terrestrial ecology. It further looks to identify measures that can be undertaken and/or implemented to mitigate, manage and monitor such impacts.

## 9.1 Applicable Requirements & Standards

### 9.1.1 National Regulations

The Law of the Republic of Uzbekistan "On Nature Protection" (1992 as amended in 2024)

This law serves as the fundamental legal framework for environmental protection in Uzbekistan, with implementation responsibilities assigned to the Ministry of Ecology, Environmental Protection and Climate Change (MEEPCC). It defines the principles, responsibilities, and mechanisms for environmental preservation, biodiversity conservation, and the sustainable use of natural resources.

Key regulatory requirements under the law include:

- The adoption of core principles such as the preservation of ecological balance, biodiversity conservation, and the sustainable use of natural resources;
- The establishment of measures for the protection, reproduction, and rational use of animal and plant species, including the conservation of habitats;
- Provisions to ensure that land management practices prevent ecosystem degradation and maintain critical habitats for terrestrial and avian species;
- A requirement for state ecological monitoring, including the status of flora and fauna, and the integration of monitoring data into decision-making processes.

The law also mandates that all economic and development activities undergo State Environmental Expertise (SEE), to ensure that projects do not pose significant risks to biodiversity, including birds and terrestrial ecosystems.

Furthermore, the law provides for the establishment of protection zones around environmentally sensitive areas, such as forests, wetlands, and breeding grounds for rare or migratory birds. It forms the legal foundation for Environmental and Social Impact Assessments (ESIAs), requiring that potential impacts on terrestrial and bird habitats are thoroughly assessed and mitigated. In addition, it supports the protection of threatened species, particularly those listed in the national Red Book or covered by international conventions.

The Law of the Republic of Uzbekistan "On Protection and Use of the Wildlife" (2016, as amended in 2024)

This law regulates the use, protection, reproduction and restoration of wildlife in order to promote conservation and ensure diversity of species in their natural habitat.

Other laws and regulations include:

- The Law of the Republic of Uzbekistan "On Protection and Use of Vegetation" (2016, as amended in 2024)
- Decree of the Cabinet of Ministers "Regulation on the procedure for using plant world objects and passing licensing procedures in the field of using plant world objects" No. 290 (2014, as amended in 2024) sets out the requirements to obtain permission to cut wood and shrub plantations that are in the zone of the construction site.

- The code on administrative responsibility of the Republic of Uzbekistan (2017, as amended in 2025)- Article 94 sets the regulation related to “destruction, extraction of rare or endangered animals or the commission of other actions that may lead to the death, reduction in numbers or disturbance of the habitat of such animals.”

### 9.1.2 Lender Requirements

**IFC**

IFC’s Performance Standard 6 (PS6), titled Biodiversity Conservation and Sustainable Management of Living Natural Resources, sets out comprehensive requirements for managing biodiversity risks and conserving ecosystems. Projects are required to identify and assess potential impacts on biodiversity as part of the Environmental and Social Impact Assessment (ESIA), applying the mitigation hierarchy of avoidance, minimisation, restoration, and, where necessary, biodiversity offsets. PS6 distinguishes between modified, natural, and critical habitats, with particularly stringent provisions for projects that may affect critical habitats. These include the requirement to demonstrate that no measurable adverse impacts will occur on key biodiversity features or on ecological processes. In such areas, clients are expected to achieve no net loss-or, in some cases, a net gain-of biodiversity. PS6 also emphasises the importance of ecosystem services and requires an assessment of how project activities might affect them, particularly where communities rely on these services for their livelihoods.

**EBRD**

Environmental and Social Requirement 6 (ESR6) of EBRD’s E&S Policy (2024) focuses on biodiversity conservation and the sustainable management of living natural resources, requiring a commitment to biodiversity protection.

Similar to IFC PS6 requirements, ESR6 emphasizes a precautionary approach to biodiversity conservation. Projects are required to apply the mitigation hierarchy—avoidance, minimization, restoration, and, where necessary, biodiversity offsets—to achieve no net loss and, where appropriate, a net gain in biodiversity.

## 9.2 Scoping

The scope of the biodiversity assessment for this ESIA is summarised as follows:

- Field Surveys: Systematic baseline surveys were conducted across the Project area and surrounding landscape to document species presence, abundance, and seasonal activity. This included birds, mammals, amphibians, reptiles, and floral species, with particular attention to species of conservation concern.
- Habitat Mapping and Evaluation: The Project footprint areas were characterised to identify habitat types including modified and natural habitats, linear features (e.g., irrigation channels, etc.), and overall land use.
- Regulatory and Conservation Context: National and international legislation, Red List data were reviewed to assess legal and ecological importance of habitats and species within the Project area.
- Critical Habitat Assessment: The Project was assessed for Critical Habitat under IFC PS6/EBRD Criteria.
- Impact Identification: Potential impacts of construction and operation, including habitat loss, fragmentation, disturbance, pollution, wildlife interactions with airport operations, etc. were evaluated to determine areas and receptors at risk.

- Mitigation Considerations: Potential measures for impact avoidance and minimisation were identified to guide detailed mitigation planning and ensure alignment with good practice and international guidance.
- Risk Prioritisation: Sensitive species and habitats/sites were flagged based on vulnerability and exposure to Project activities, providing a basis for targeted monitoring or management actions during subsequent Project phases.

This scoping exercise establishes the ecological baseline, highlights key biodiversity features, and identify potential impacts and mitigation measures to ensure that potential impacts on flora and fauna are adequately understood and addressed.

## 9.3 Baseline Conditions

### 9.3.1 KBA and LPA Proximity

The Project area is assessed for its overlap with, or proximity to, internationally recognized Key Biodiversity Areas (KBAs) and Legally Protected Areas (LPAs). While such overlap does not automatically result in a Critical Habitat (CH) designation, there is often a strong correlation. This is because the IUCN's KBA standard, widely recognized internationally, is incorporated into the CH criteria used by IFC PS6 and EBRD ESR6.

Beyond potential CH considerations, proximity to KBAs and LPAs is a key factor in ecological risk assessment. Areas near or overlapping these designations are typically highly ecologically sensitive and often contain species, habitats, or other biodiversity features of priority importance to regional and international conservation stakeholders.

To support this analysis, the Project's spatial relationship with KBAs and LPAs was assessed using the Integrated Biodiversity Assessment Tool (IBAT). The review confirms that Project does not overlap any KBA/PA and there are no PAs or KBAs located within a 10 km radius of the Project site. However, four PAs and four KBAs are situated within a 50 km radius. Details of these sites are provided in Table 9-1, Figure 9-1 and Figure 9-2.

Tuyabuguz Reservoir is the nearest Important Bird Area (IBA) located at approximately 11 km southeast of the Project site. This IBA is triggered for one species, Common Pochard (VU) under criterion A1[10].

**Table 9-1 Areas of Ecological Importance in the Region**

| SN | PA/ KBA | Site | Designation | IUCN Category | Approximate Distance from Project Site |
|---|---|---|---|---|---|
| 1 | PA | Ugam-Chatkal State National Nature Park | National Natural Park | II | 39 km |
| 2 | PA | Chatkal Mountains Biosphere Reserve | UNESCO-MAB Biosphere Reserve | Not Applicable | ~40 km |
| 3 | PA | Western Tien-shan | World Heritage Site (natural or mixed) | Not Applicable | ~40 km |
| 4 | PA | Ugam-Chatkal State Biosphere Reserve | State Biosphere Reserve | Not Assigned | ~40 km |

[10] https://datazone.birdlife.org/site/factsheet/20681-tuyabuguz-reservoir

| SN | PA/ KBA | Site | Designation | IUCN Category | Approximate Distance from Project Site |
|---|---|---|---|---|---|
| 5 | KBA | Chardara Reservoir | IBA | Not Applicable | 47 km |
| 6 | KBA | Bashkyzylsay Unit of the Chatkal Mountains Biosphere Reserve | IBA | Not Applicable | ~40 km |
| 7 | KBA | Balykchi Fish Farm | IBA | Not Applicable | 35 km |
| 8 | KBA | Tuyabuguz Reservoir | IBA | Not Applicable | 11 km |

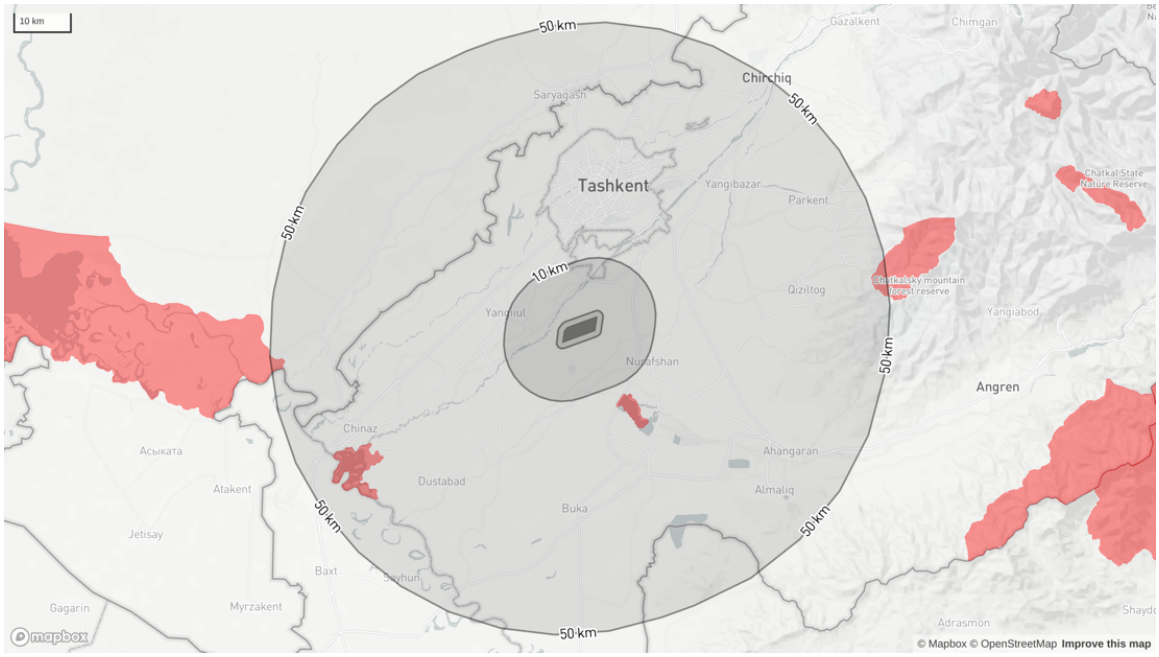



**Figure 9-1 Locations of the Key Biodiversity Areas (KBAs) in relation to Project Site**

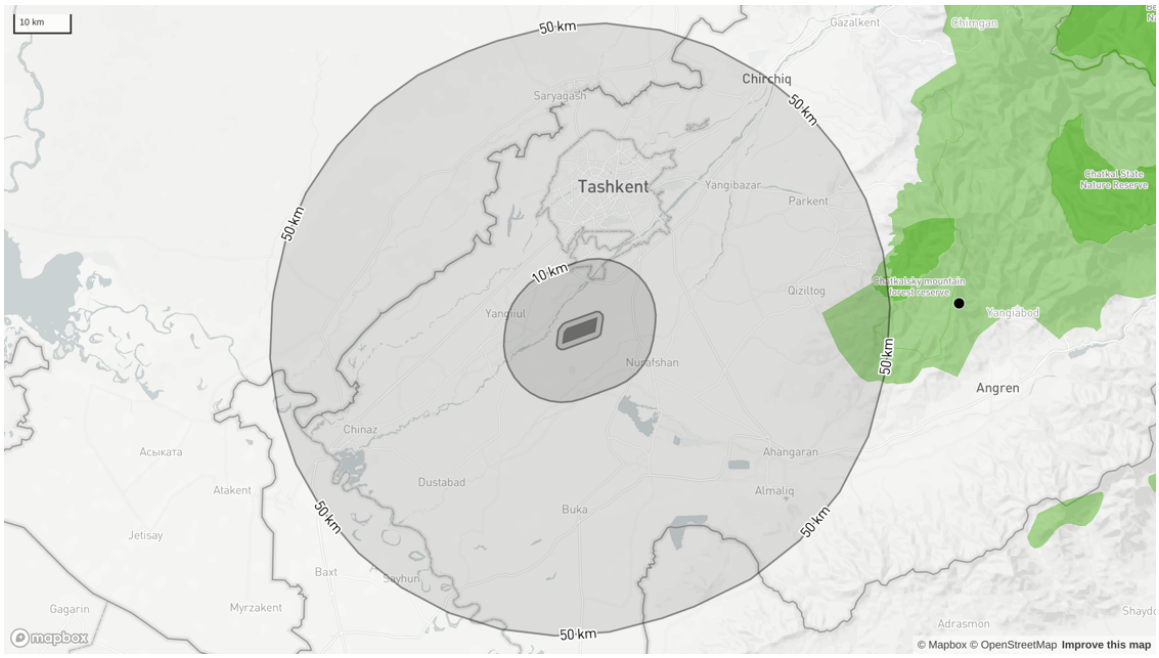



**Figure 9-2 Locations of the Protected Areas (PAs) in relation to Project Site**

### 9.3.2 Ecological Overview

The Project area covers approximately 1,300 ha and is located on the flat alluvial–proluvial plains between the Chirchik and Ahangaran rivers, within the lower Chirchik River basin in the Quyi Chirchiq and Urta Chirchiq districts of Tashkent Region. Ecologically, the site and its surroundings represent a highly transformed agro-ecosystem, dominated by irrigated arable lands, gardens, drainage and irrigation canals, and settlements. Natural vegetation is largely confined to remnants of woody and shrubby riparian communities, reed beds in marshy depressions, and small groves associated with graveyards and elevated areas. The terrain is flat (300–360 m a.s.l.) and heavily dissected by irrigation infrastructure. Climatically, the area falls within the hot-summer Mediterranean zone, characterized by hot, dry summers and mild

winters, with a mean annual temperature of about 14.1°C and annual precipitation of approximately 427 mm, mainly in winter and spring.

Phytogeographically, the site lies within the Chinaz region of the Middle Syrdarya district of the Turan province, reflecting a landscape where natural ecological features persist only in fragmented and modified forms within a predominantly anthropogenic setting.

### 9.3.3 Baseline Surveys

#### 9.3.3.1 Methods and Effort Summary

5 Capitals/SLR partnered with locally based consultant, 'Nasser Business Technology (NBT)' to undertake the baseline surveys. The faunal and floral surveys were conducted to establish a biodiversity baseline for the Project area, focusing on floral species and vertebrates through systematic field observations. Methods included Vantage Point (VP) observations for birds, walking transects for multi-taxa data (mammals, birds, reptiles, amphibians), targeted bat surveys and transects for floral species. Transects were conducted within the Project area as well as in the areas along the Chirchik River on west of Project site.

Two VPs (VP1 at 41.085915 N, 69.183674 E; VP2 at 41.097756 N, 69.231150 E) were used for avian monitoring located at each end of proposed runway covering a 2 km radius with 36 hours of effort per VP in each season covering spring, autumn and winter. Ten transects (lengths 710–3900 m) covered diverse habitats like agricultural fields, irrigation canals, fishponds, and White Stork colonies. The details of the surveys are provided in **Table** 9-2.

**Table 9-2 Details of the Baseline Surveys**

| Survey Type | Effort Summary | Timeframe |
|---|---|---|
| Faunal Surveys (Mammals, herpetofauna, resident and breeding birds) | 10 transects (total ~12.41 km) | April-May 2025 |
| Spring VP Surveys | 36 hours per VP (2 VPs); 6-hour each session | April-May 2025 |
| Autumn VP Surveys | 36 hours per VP (2 VPs); 6-hour each session | September-October 2025 |
| Winter VP Survey | 36 hours per VP (2 VPs); 6-hour each session | December 2025 - January 2026 |
| Bat Surveys | 5 Transects (morning/evening); acoustic survey | May 2025 |
| Botanical and Habitat Survey | 14 sample plots/locations within the Project area | April 2025 |

The sampling locations are indicated in the Figure 9-3.

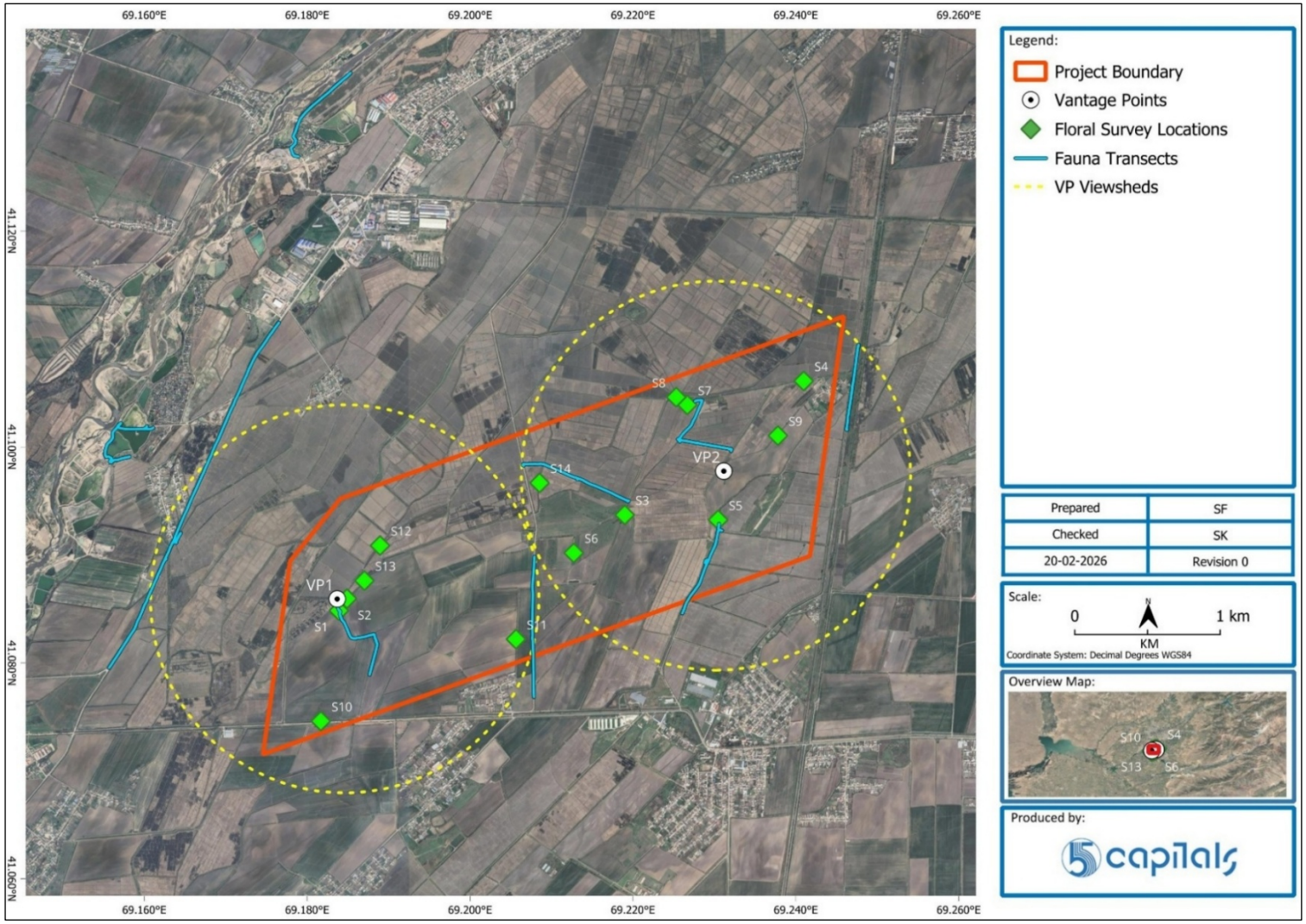



**Figure 9-3 Sampling Location Map**

#### 9.3.3.2 Habitats

The Project area predominantly consists of modified habitats characterized by anthropogenic landscapes. The majority of the area is covered by irrigated arable land, which is used for agricultural purposes, including crops such as cotton, wheat, and rice. Additionally, fruit gardens are scattered throughout the area, where fruit trees such as apple, apricot, and cherry are cultivated. Irrigation channels, ditches, and boundary strips form important features of the landscape, providing water management and habitat for certain plant species. Woodland belts are narrow strips of planted trees, typically along roads and irrigation channels, offering limited biodiversity compared to natural habitats. Several areas of old graveyards are also present within the Project area where semi-natural vegetation, including native and weedy species, can be found. Abandoned pastures and settlements are also present within the Project area, contributing to the modified nature of the landscape. Overall, the habitat types within the Project area are primarily anthropogenic and modified, with little to no natural habitats.

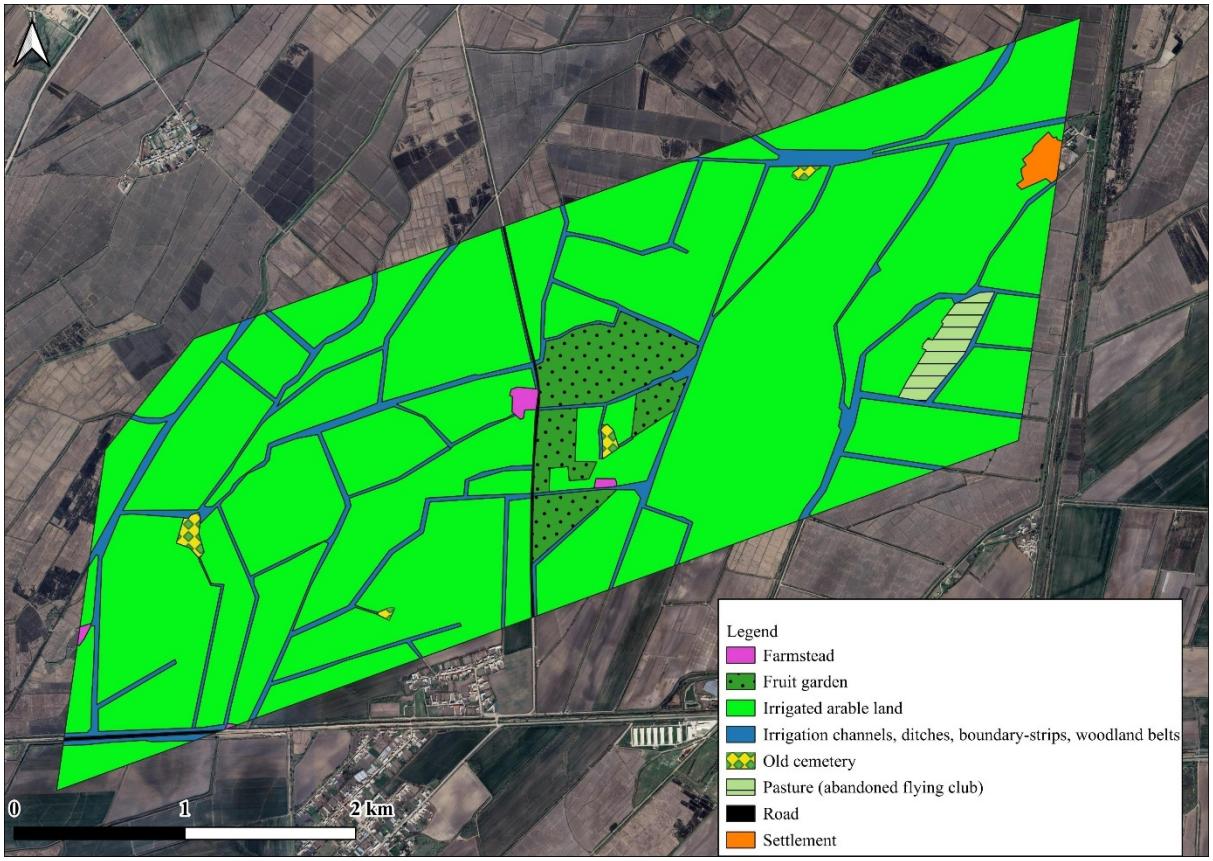



**Figure 9-4 Habitat Characterization**

**Figure 9-5 Photo-documentation of the Habitats**

#### 9.3.3.3 Flora

A botanical survey of the Project Area was undertaken in April 2025. The objectives were to document plant species composition and habitat types, review available botanical literature, identify threatened species.

Field surveys were conducted using standard botanical methods. Fourteen sample plots (50 × 50 m quadrats) were surveyed across representative habitats within the Project Area, including irrigated agricultural land, gardens, shelterbelts, wasteland, canals, and other anthropogenically modified landscapes. At each plot, habitat type and condition, land use, disturbance factors, and vegetation structure were assessed. All plant species present were recorded, and their abundance and cover were estimated using the DAFOR (D = Dominant; A = Abundant, F = Frequent, O = Occasional, R = Rare) and Braun–Blanquet scales. Species identification was based on regional floras and taxonomic references, and conservation status was assessed using the Uzbekistan Red Data Book and the IUCN Red List.

Habitats were classified and mapped on field data and interpretation of satellite imagery. In the absence of a national habitat classification system, the IUCN Habitats Classification Scheme, IUCN Global Ecosystem Typology, and (where applicable) the EUNIS system were applied. Habitats were evaluated in line with IFC Performance Standard 6 and classified as modified, natural, or critical, using IFC and IUCN guidance.

A comprehensive literature review was undertaken to provide regional context for the field survey results. Although the mountainous areas of Tashkent Region are well studied botanically, the lowland plain of the Chirchik River basin remains comparatively underexplored. Key sources included classical and modern floristic works, national floras,

regional checklists, the Red Data Book of Uzbekistan, IUCN assessments, and recent inventories of the flora of Tashkent Region. Online biodiversity databases and digital herbaria (e.g. GBIF, Plantarium) were also reviewed.

A total of 132 plant species were recorded in the Project area, including 116 native species and 16 alien species. Four out of the alien species viz. *Ambrosia artemisiifolia, Bidens frondosa, Xanthium orientale,* and *Xanthium spinosumare* are listed as Invasive in Uzbekistan in EPPO Global Database[11]. The flora is dominated by native plants alongside common alien weeds typical for anthropogenic landscapes in Uzbekistan. No threatened species (CR, EN, VU) or endemic species were found in the area.

The Project area is located within the ancient Tashkent oasis on an alluvial plain between the Chirchiq and Akhangaran Rivers, heavily used for agriculture. Field surveys and satellite imagery revealed that almost all habitats within the Project area are of a modified, anthropogenic type.

The eight main types of modified habitats within the Project area are:

- Irrigated arable land (cotton, wheat, rice, corn),
- Fruit gardens (apple, apricot, cherry, peach),
- Woodland belts (mulberry, poplar, willow),
- Boundary-strips (weedy herbaceous vegetation),
- Irrigation channels and ditches (reeds, sedges),
- Old graveyards (semi-natural vegetation),
- Settlements (planted fruit and ornamental trees),
- Roads (urban infrastructure).

The flora is mostly agricultural crops, planted trees, and secondary weedy vegetation, with some semi-natural vegetation along old graveyards and irrigation channels.

Although the construction of the airport will lead to vegetation loss, its impact on biodiversity is not expected to be significant, given the modified nature of the habitats. Compensation for vegetation damage during construction shall be in line with Uzbekistan's national regulations (Decree No. 290, 2014).

[11] Makhkamov T, Kortz A, Hejda M, Brundu G, Pyšek P (2024) Naturalized alien flora of Uzbekistan: species richness, origin and habitats. Biological Invasions 26, 2819–2830. https://doi.org/10.1007/s10530-024-03371-w

| | |
|---|---|
| | |
| *Allium suworowii* | *Asperugo procumbens* (native weedy plant) |
| | |
| *Salix babylonica* (introduced non-native tree) | *Bromus tectorum* (native annual weedy grass) |

**Figure 9-6 Photo-documentation of the Floral Species Observed**

#### 9.3.3.4 Avifauna

Avifaunal surveys were undertaken using two fixed Vantage Points (VPs) to enable systematic observations under optimal visibility conditions. During the spring season, surveys comprised a total of 36 observation hours per VP, conducted across April and May 2025. Observations were undertaken during morning and evening periods to avoid peak heat conditions. Recorded parameters included species identification, number of individuals, flight altitude and direction, distance from the observation point, site usage, and prevailing weather conditions.

Autumn and winter surveys followed the same methodology, with 36 hours of observation per VP conducted during September-October 2025 and December 2025-January 2026. In addition, supplementary data were collected through ten walking transects during the spring period, covering a range of habitats such as agricultural fields, irrigation canals, fishponds, and known White Stork (*Ciconia ciconia*) breeding colonies.

Across all survey seasons (autumn and spring), a total of 56 bird species were recorded. Of these, 50 species were observed during the spring surveys (35 common to both VPs), while 41 species were recorded in autumn. The findings of the winter VP survey are being analyzed and will be incorporated in the next version of the ESIA. Species distribution was generally uniform across the study area; however, VP-specific differences were noted, largely attributable to local feeding conditions, with five species recorded exclusively at VP1 and ten species exclusive to VP2. In spring, species composition included 22 breeding migrants (BM), 14 residents (R), seven breeding and winterers (BMW), four migrants (M), and three migrant

winterers (MW). During the autumn period, 15 spring migrant species were no longer present, while six additional resident or wintering species were recorded.

Three species listed in the Uzbekistan Red Data Book (UzRDB) were consistently recorded across survey seasons: Little Egret (*Egretta garzetta*; UzRDB category 2 - Vulnerable/Declining; IUCN Least Concern), White Stork (*Ciconia ciconia*; UzRDB category 3 - Near Threatened; IUCN Least Concern), and Glossy Ibis (*Plegadis falcinellus*; UzRDB category 2 - Vulnerable/Declining; IUCN Least Concern). Northern Lapwing (Vanellus vanellus) was also recorded and is classified as Near Threatened on the IUCN Red List. Walking transects added six additional species to the inventory, including two UzRDB-listed species: Pygmy Cormorant (*Microcarbo pygmaeus*; UzRDB category 3 - Near Threatened; IUCN Least Concern) and Cinereous Vulture (*Aegypius monachus*; UzRDB category 3 - Near Threatened; IUCN Near Threatened). However, none of the IUCN Threatened species was recorded. Waterfowl observations were primarily associated with the Chirchik River and nearby fishponds and were not recorded within the core Project Area.

Other notable species recorded include Common Pheasant *(Phasianus colchicus*), Eastern Carrion Crow (*Corvus corone orientalis*), and Common Myna *(Acridotheres tristis*), typically recorded in flocks.

In addition to VP surveys, transect surveys were conducted to record bird activity across the wider landscape, both within and outside the Project area. The transects included coverage of areas along the Chirchik River. Survey results indicate a relatively higher concentration of bird abundance and activity along the river corridor, which supported the highest overall counts and was dominated by species associated with aquatic habitats. Species recorded in these areas included Pygmy Cormorant, Great Cormorant, Mallard, Caspian Gull, Black-headed Gull, Common Coot, and Common Moorhen. However, the highest overall abundance recorded during the surveys was for the Rock Pigeon in those areas.

**White Stork Nesting Colonies**

White Stork breeding colonies constitute a key ecological feature of the landscape and represent the most abundant resident colonial nesting bird species in the vicinity of the Project Area. Drive through survey was conducted to identify the major colonies of the species in the landscape. Three main nesting colonies and isolated nests were recorded during these surveys, primarily associated with electricity transmission infrastructure.

The largest breeding colony, comprising approximately 50 nests, is located on transmission line towers along the highway, approximately 1.1 km northwest of the Project site boundary, near village Yelibay. Surveys confirmed the presence of at least 41 active breeding pairs within this colony. A second colony, consisting of approximately 30 nests, is situated on transmission line towers along the railway corridor. This colony extends for approximately 3 km in a north–south direction, with the nearest nest located around 2 km southeast of the Project site boundary. A third, smaller colony of approximately 12 nests was recorded approximately 4 km north of the Project site, in the vicinity of the Chirchik River.

In addition to these colonies, isolated nests were recorded closer to the Project Area. One nest with a pair of adult birds and chicks was observed on an electricity pole at the southwestern corner of the Project site. Two further single nests containing chicks were recorded approximately 1-1.5 km south of VP2, outside the Project site boundary (Refer Figure 9-8.).

According to the results of the IIXX International White Stork Census conducted during June-August 2024, the average productivity for the Tashkent Region was 2.63 chicks per breeding pair. Based on this value and the approximately 86 nests recorded in the vicinity of the Project site, the local White Stork population of the Project landscape is estimated to comprise approximately 400 individuals.

The list of mammals recorded during the survey has been provided Table 9-3.

| | |
|---|---|
| | |
| White Stork Nesting Colony 1 at ~1.1 km from the Project site | Nest with the chicks |
| | |
| Nests in the Colony 2 at ~3 km south of Project site | Marsh Harrier |
| | |
| Black-crowned Night Heron | Glossy Ibis |

**Figure 9-7 Photo-documentation of the Avifauna and Nesting Colonies Observed**

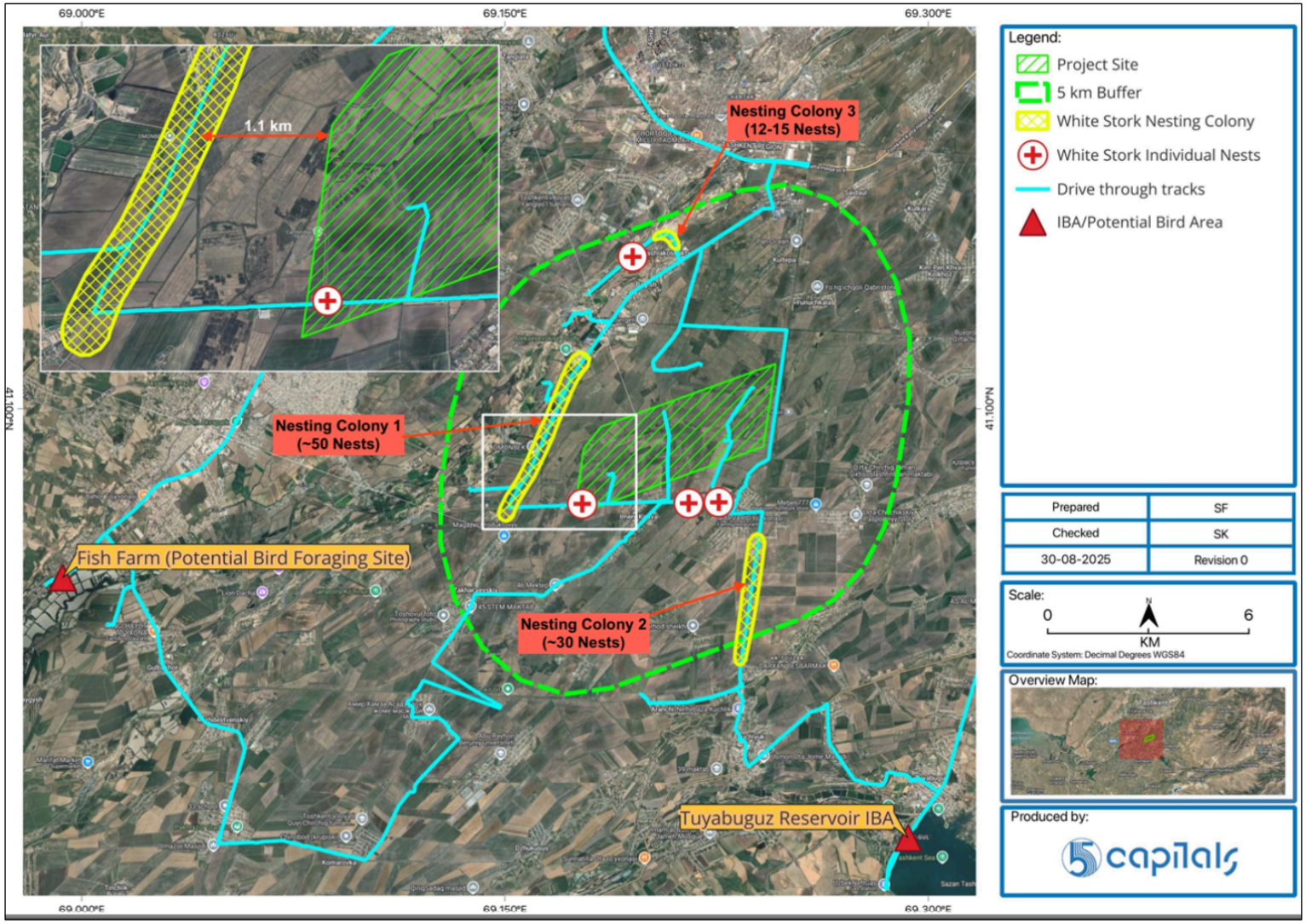



**Figure 9-8 White Stork Nesting Sites in relation to Project Site**

**Table 9-3 List of Avifaunal Species Recorded**

| SN | Common Name | Scientific Name | UzRDB | IUCN | VP1[12] | VP2[12] | Resident/ Migratory Status[13] | Indicative 0.1% threshold of Global Population[14] |
|---|---|---|---|---|---|---|---|---|
| 1 | Barn Swallow | *Hirundo rustica* | - | LC | 721 | 1067 | BM | 290,000 |
| 2 | Black-crowned Night Heron | *Nycticorax nycticorax* | - | LC | 183 | 190 | BM | 440 |
| 3 | Black-winged Stilt | *Himantopus himantopus* | - | LC | 513 | 522 | BM | 486 |
| 4 | Blue-cheeked Bee-eater | *Merops persicus* | - | LC | 71 | 13 | BM | 150 |
| 5 | Collared Sand Martin | *Riparia riparia* | - | LC | - | 18 | BM | 29,000 |
| 6 | Common Cuckoo | *Cuculus canorus* | - | LC | 2 | 2 | BM | 34,600 |
| 7 | Common Hoopoe | *Upupa epops* | - | LC | 83 | 2 | BM | 50,00 |
| 8 | Common Kestrel | *Falco tinnunculus* | - | LC | 3 | 4 | BMW | 4,330 |
| 9 | Common Kingfisher | *Alcedo atthis* | - | LC | 14 | 3 | R | 716 |
| 10 | Common Magpie | *Pica pica* | - | LC | 709 | 472 | R | 64,300 |
| 11 | Common Moorhen | *Gallinula chloropus* | - | LC | 51 | 34 | R | 9,069 |
| 12 | Common Myna | *Acridotheres tristis* | - | LC | 1149 | 792 | R | 200,000 |
| 13 | Common Pheasant | *Phasianus colchicus* | - | LC | 95 | 105 | R | 50,000 |
| 14 | Common Redstart | *Phoenicurus phoenicurus* | - | LC | - | 1 | BM | 17,500 |
| 15 | Common Rosefinch | *Carpodacus erythrinus* | - | LC | 5 | - | BM | 27,300 |
| 16 | Common Sandpiper | *Actitis hypoleucos* | - | LC | 97 | 28 | BM | 3,230 |

[12] The numbers correspond to the total number of observations across all seasons. However, they may include repeated detections of the same set of individuals, and therefore may not accurately represent the actual population sizes of the respective species within the landscape or Project area.

[13] R: Resident species; BM: Breeding species; BMW: Breeding and wintering species; MW: Wintering species; M: Migratory species

[14] The values presented are provided solely as indicative reference/screening benchmarks and should not be interpreted as biologically acceptable or permissible fatality thresholds. For consistency and precaution, the calculations use 0.1% of the lower-bound estimate of the respective global population reported by IUCN/BirdLife, where available. These values are intended only to provide broad population-level context.

| SN | Common Name | Scientific Name | UzRDB | IUCN | VP1[12] | VP2[12] | Resident/ Migratory Status[13] | Indicative 0.1% threshold of Global Population[14] |
|---|---|---|---|---|---|---|---|---|
| 17 | Common Swift | *Apus apus* | - | LC | - | 29 | BM | 80,000 |
| 18 | Common Teal | *Anas crecca* | - | LC | 37 | 23 | M | 2,800 |
| 19 | Common Wood-pigeon | *Columba palumbus* | - | LC | - | 4 | BMW | 51,000 |
| 20 | Crested Lark | *Galerida cristata* | - | LC | 14 | 10 | R | 172,000 |
| 21 | Eurasian Blackbird | *Turdus merula* | - | LC | 39 | 34 | R | 145,000 |
| 22 | Eurasian Collared Dove | *Streptopelia decaocto* | - | LC | 96 | 39 | R | 40,000 |
| 23 | Eurasian Hobby | *Falco subbuteo* | - | LC | - | 1 | BM | 900 |
| 24 | Eurasian Jackdaw | *Corvus monedula* | - | LC | 3000 | 530 | R | 39,000 |
| 25 | Eurasian Tree Sparrow | *Passer montanus* | - | LC | 1910 | 1161 | R | 53,700 |
| 26 | European Bee-eater | *Merops apiaster* | - | LC | 50 | 6 | BM | 18,400 |
| 27 | European Roller | *Coracias garrulus* | - | LC | 20 | 8 | BM | 100 |
| 28 | Glossy Ibis | *Plegadis falcinellus* | 2(VU:D) | LC | 159 | 221 | BM | 119 |
| 29 | Great Cormorant | *Phalacrocorax carbo* | - | - | - | 9 | BMW | 1400 |
| 30 | Grey Heron | *Ardea cinerea* | - | LC | 2 | 3 | BMW | 500 |
| 31 | Hooded Crow | *Corvus cornix* | - | LC | 142 | 60 | MW | Data Not available (likely several thousands) |
| 32 | House Sparrow | *Passer domesticus* | - | LC | 347 | 505 | R | 896,000 |
| 33 | Indian Sparrow | *Passer indicus* | - | LC | 1165 | 1317 | BM | Data Not available (likely several thousands) |
| 34 | Isabelline Shrike | *Lanius isabellinus* | - | LC | 73 | 9 | BM | Data Not available |
| 35 | Laughing Dove | *Streptopelia senegalensis* | - | LC | 55 | 104 | R | 2,400 |

| SN | Common Name | Scientific Name | UzRDB | IUCN | VP1[12] | VP2[12] | Resident/ Migratory Status[13] | Indicative 0.1% threshold of Global Population[14] |
|---|---|---|---|---|---|---|---|---|
| 36 | Little Egret | *Egretta garzetta* | 2(VU:D) | LC | 18 | 21 | BMW | 430 |
| 37 | Long-legged Buzzard | *Buteo rufinus* | - | LC | 68 | 8 | BMW | 100 |
| 38 | Mallard | *Anas platyrhynchos* | - | LC | 63 | 44 | BMW | 26,152 |
| 39 | Northern Lapwing | *Vanellus vanellus* | - | NT | 13 | 12 | MW | 4,300 |
| 40 | Northern Long-eared Owl | *Asio otus* | - | LC | 24 | 4 | MW | 2,230 |
| 41 | Oriental Carrion Crow | *Corvus orientalis* | - | LC | 433 | 453 | R | Data Not available |
| 42 | Oriental Turtle-dove | *Streptopelia orientalis* | - | LC | 9 | 4 | BM | Data Not available |
| 43 | Purple Heron | *Ardea purpurea* | - | LC | 5 | 2 | BM | 180 |
| 44 | Red-crested Pochard | *Netta rufina* | - | LC | 19 | 24 | BMW | 420 |
| 45 | Red-headed Bunting | *Granativora bruniceps* | - | LC | - | 2 | BM | Data Not available |
| 46 | Red-tailed Shrike | *Lanius collurio* | - | LC | 1 | - | M | 21,900 |
| 47 | Rock Pigeon | *Columba livia* | - | LC | 9527 | 7927 | R | Data Not available (likely several thousands |
| 48 | Rosy Starling | *Pastor roseus* | - | LC | 1000 | 470 | BM | 400 |
| 49 | Ruddy Shelduck | *Tadorna ferruginea* | - | LC | 36 | 4 | M | 134 |
| 50 | Shikra | *Accipiter badius* | - | LC | - | 2 | BM | 500 |
| 51 | Siberian Stonechat | *Saxicola maurus* | - | LC | 88 | 27 | BM | Data Not available |
| 52 | Spotted Flycatcher | *Muscicapa striata* | - | LC | 2 | - | BM | 54,000 |
| 53 | Western Marsh Harrier | *Circus aeruginosus* | - | LC | 31 | 29 | R | 600 |
| 54 | White Stork | *Ciconia ciconia* | 3(NT) | LC | 876 | 800 | R | 526 |
| 55 | White Wagtail | *Motacilla alba* | - | LC | 159 | 34 | MW | Data Not available |
| 56 | Yellow Wagtail | *Motacilla flava* | - | LC | - | 140 | M | Data Not available |

#### 9.3.3.5 Mammals

Mammal surveys were conducted during the spring period (April-June 2025) using ten walking transects. Data collection focused on direct observations as well as indirect evidence of presence, including tracks, burrows, feeding signs, etc. Transects were designed to sample a representative range of habitats within the Study area, including agricultural fields, wastelands, irrigation canals, and livestock grazing areas.

Additional information was obtained through review of available literature. Conservation status assessments were based on the Uzbekistan Red Data Book (UzRDB) and the IUCN Red List.

A total of ten mammal species were recorded during the surveys. All recorded species are classified as Least Concern on the IUCN Red List, and none are listed in the Uzbekistan Red Data Book. The mammal assemblage is typical of agricultural and wetland-influenced landscapes and is dominated by species tolerant of human-modified environments.

Synanthropic rodents, such as the House Mouse (*Mus musculus*), were abundant within cultivated areas and near human settlements. Zaisan Mole Vole (*Ellobius tancrei*) was widespread across the Study area, with characteristic signs recorded along all transects. Medium-sized carnivores, including Red Fox (*Vulpes vulpes*) and Golden Jackal (*Canis aureus*), were also confirmed, with fox burrow identified near VP1 and jackal tracks recorded along Transect 1, indicating the presence the species.

Semi-aquatic species, notably Muskrat (*Ondatra zibethicus*) and Coypu (*Myocastor coypus*), were restricted to irrigation canals and associated wetland features and were not recorded within intensively cultivated areas. The list of mammals recorded during the survey has been provided in Table 9-4.

**Table 9-4 Mammals Recorded during Surveys**

| SN | Common Name | Scientific Name | UzRDB | IUCN | Numbers |
|---|---|---|---|---|---|
| 1 | Coypu | *Myocastor coypus* | - | LC | 1 |
| 2 | Fox | *Vulpes vulpes* | - | LC | 1 |
| 3 | Golden Jackal | *Canis aureus* | - | LC | 2 |
| 4 | House Mouse | *Mus musculus* | - | LC | Common |
| 5 | Large Souslik | *Spermophilus fulvus* | - | LC | 5 |
| 6 | Long-eared Hedgehog | *Hemiechinus auritus* | - | LC | 1 |
| 7 | Muskrat | *Ondatra zibethicus* | - | LC | 3 |
| 8 | Tolai Hare | *Lepus tolai* | - | LC | 1 |
| 9 | Weasel | *Mustela nivalis* | - | LC | 1 |
| 10 | Zaisan Mole Vole | *Ellobius tancrei* | - | LC | Common |

| | |
|---|---|
| | |
| Muskrat | Large Souslik |

**Figure 9-9 Photo-documentation of the Mammals Observed**

#### 9.3.3.6 Bats

An acoustic survey and potential bat roost search were conducted to identify bat species within the Project area. 14 key locations which can potentially be provide suitable conditions for roosting with a high probability or be highly attractive as the water sources or foraging areas, were identified during reconnaissance, four within the Project area and 10 within a 4 km radius of the Project boundary. These areas were visited during the survey to record the bat calls near these features. Surveys were performed using an ultrasonic detector (Bat Logger M2). Transects covered areas of potential roosting sites and foraging grounds, including water bodies, agricultural fields, and settlements. Five transects were surveyed over four nights, with data collected from 114 survey points (Refer Figure 9-10).

**Note:** Bat roost surveys were not conducted in residential buildings and human-made structures within or near the Project area due to concerns that surveying these structures could lead to the disclosure of sensitive project information and trigger premature public discussion or questions. As a result, visual inspections of buildings for roosting sites were replaced with vehicle-based transect surveys using ultrasonic bat call recording equipment to establish baseline for bat species.

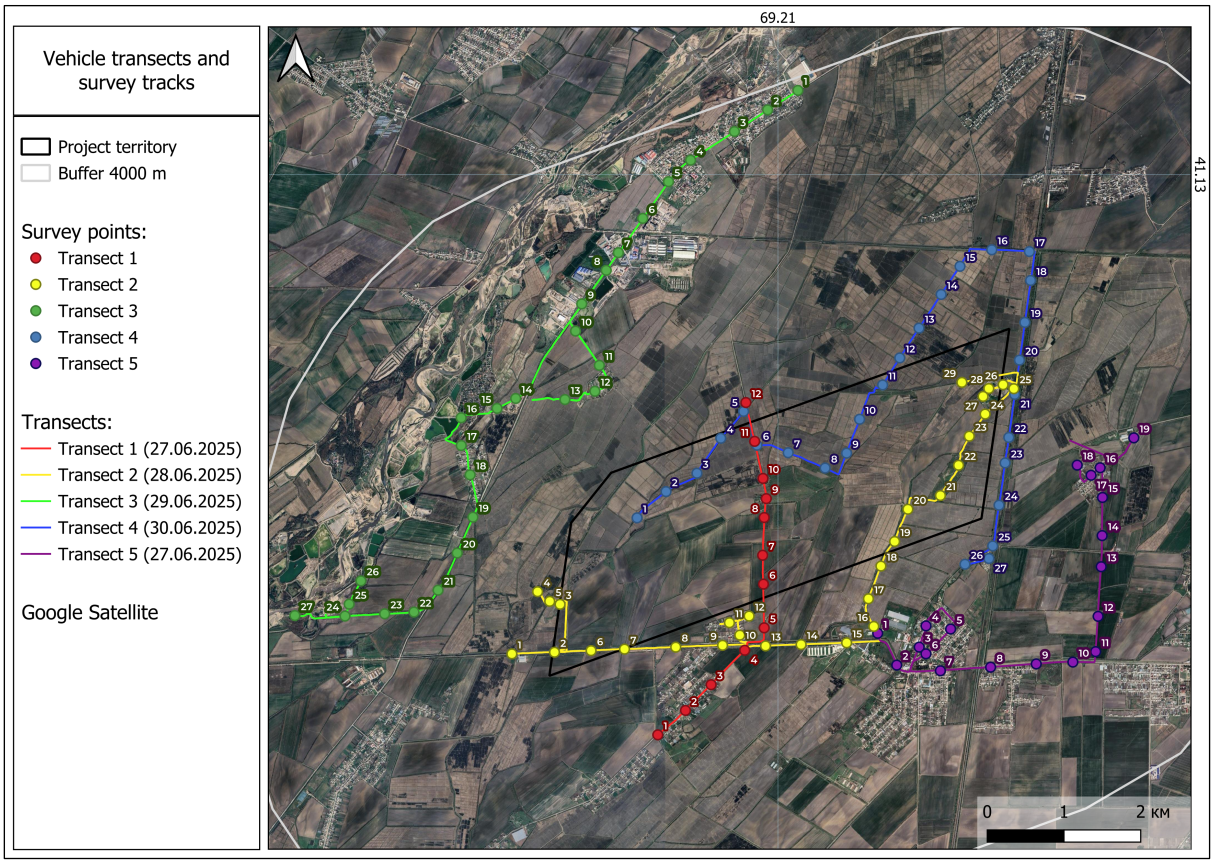



**Figure 9-10 Bat Transects**

The survey recorded six bat species across five genera, with the Common Pipistrelle (*Pipistrellus pipistrellus*) being the most abundant, accounting for approximately 96% of all detections. Other species recorded include the Serotine bat (*Eptesicus serotinus*), David's myotis (*Myotis davidii*), Geoffroy's bat (*Myotis emarginatus*), Parti-coloured bat (*Vespertilio murinus*), and the rare Eastern barbastelle (*Barbastella caspica*).

Bats were recorded at 111 out of 114 survey points, indicating widespread activity across the Project area and surrounding landscape. High bat activity was observed near water bodies and settlements, with increased activity also noted in the eastern part of the site. The majority of bat calls were recorded in anthropogenic structures, suggesting that bats are utilizing both human-made and natural roosting sites. However, no species listed as threatened in the IUCN Red List or Uzbekistan Red Data Book were detected.

The survey revealed that the Project area provides foraging habitats for bats, with activity higher near settlements and water sources. The results of the survey along with the activity analysed based on call recorded have been provided in Figure 9-11 and Figure 9-12.

**Table 9-5 Bat Species Recorded during the Survey**

| SN | Common name | Scientific name | IUCN Status | UzRDB Status | Transects recorded |
|---|---|---|---|---|---|
| 1 | Common pipistrelle | *Pipistrellus pipistrellus* | LC | Not listed | Transects 1-5 |
| 2 | David's myotis | *Myotis davidii* | LC | Not listed | Transects: 2-5 |
| 3 | Eastern Barbastelle | *Barbastella caspica* | LC | Not listed | Transect 3 |
| 4 | Geoffroy's bat | *Myotis emarginatus* | LC | Not listed | Transects: 1, 2, 4, 5 |
| 5 | Parti-coloured bat | *Vespertilio murinus* | LC | Not listed | Transects 1-3, 5 |
| 6 | Serotine bat | *Eptesicus serotinus* | LC | Not listed | Transects 1-5 |

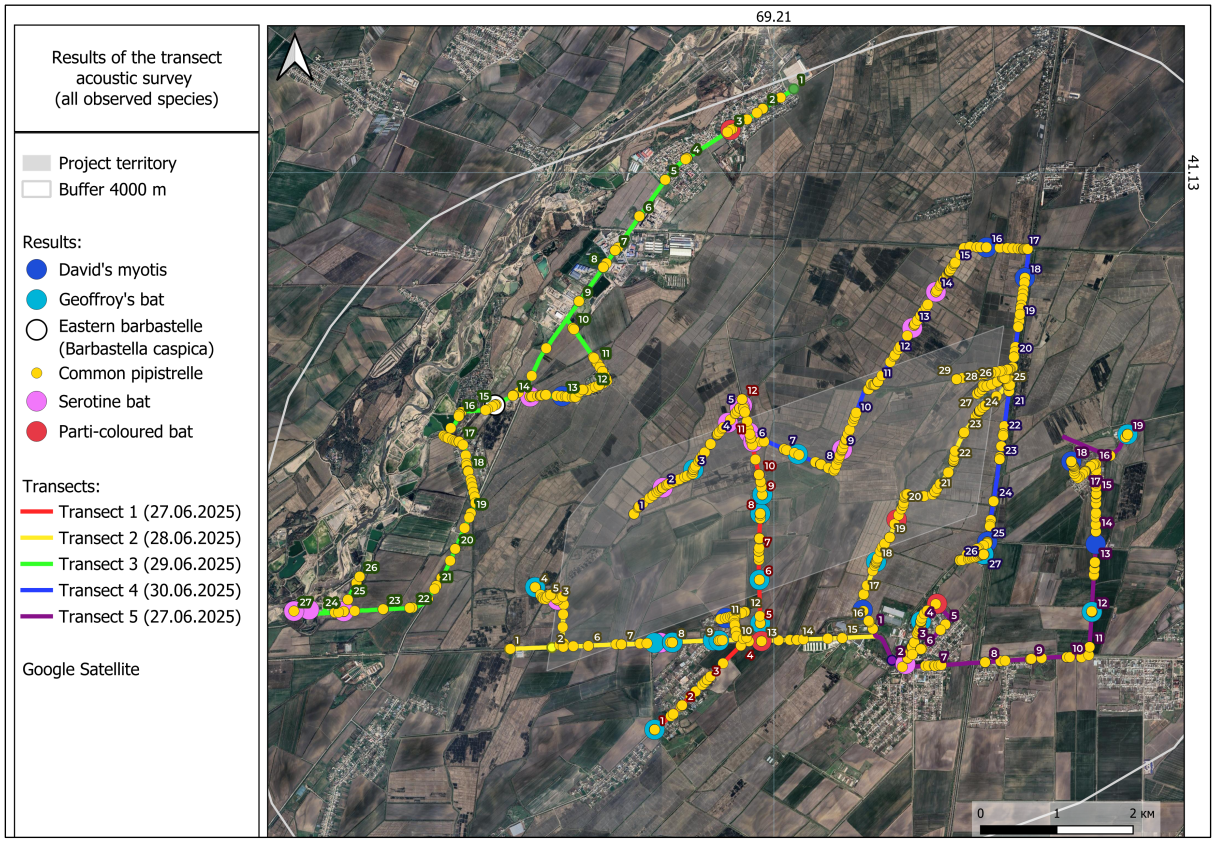



**Figure 9-11 Results of Bat Survey**

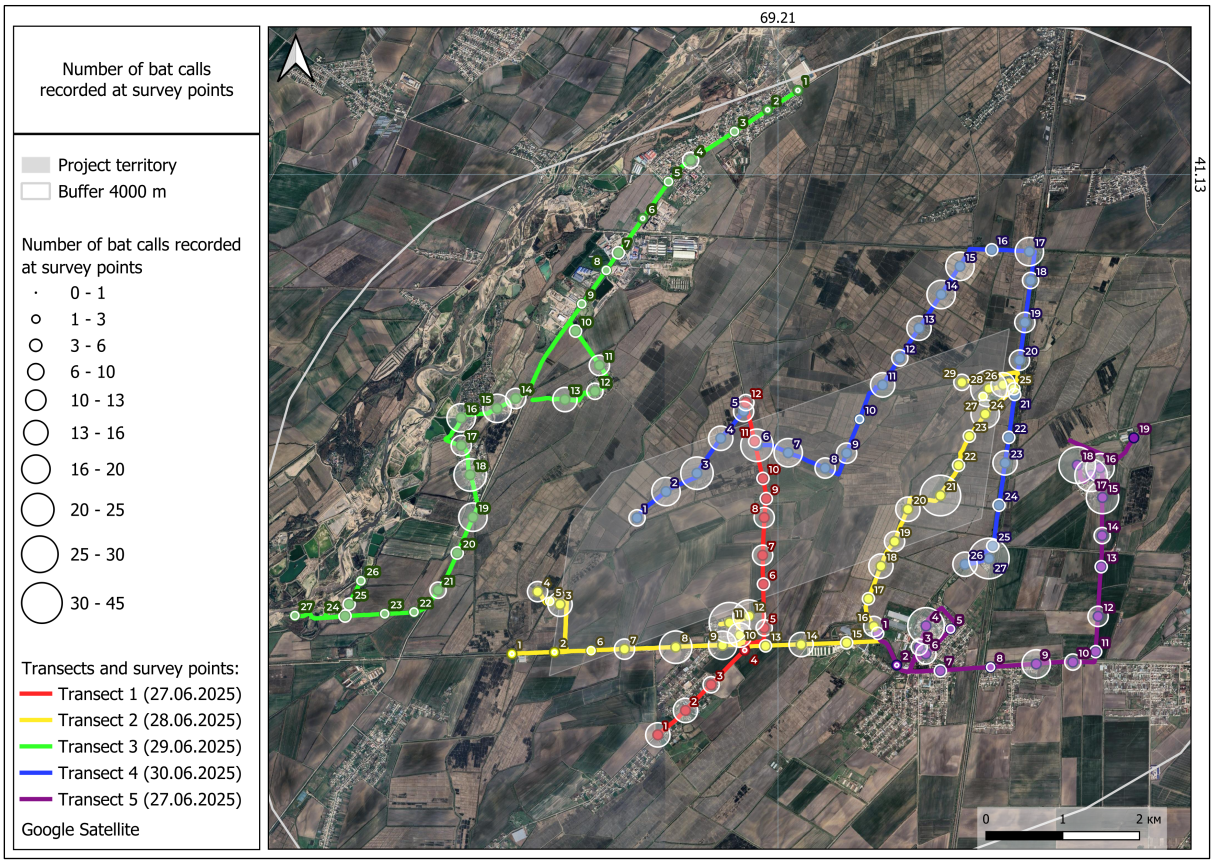



**Figure 9-12 Bat Activity based on the Calls Recorded**

### 9.3.3.7 Reptiles and Amphibians

Herpetofaunal surveys were conducted during the spring season (April-June 2025) using same ten walking transects. Survey covered habitat types most likely to support amphibians and reptiles, including irrigation canals and ponds for amphibian species, and grassy, fallow, and semi-natural areas for reptiles. Records were based on direct observations and indirect evidence of presence, such as burrows and other characteristic signs. Surveys were undertaken during periods of peak activity, primarily in the morning and evening.

A total of six herpetofaunal species were recorded during the surveys, comprising two amphibian species and four reptile species. Amphibians were commonly observed in wet habitats, particularly irrigation canals and associated water bodies, while reptile species were widely distributed across grassy and fallow areas within the study area.

The Central Asian Tortoise (*Testudo horsfieldii*), listed in the Uzbekistan Red Data Book as category 2 (Vulnerable) and classified as Vulnerable on the IUCN Red List, was recorded as two individuals within graveyard areas. These observations are considered atypical of the species' natural habitat and are likely attributable to released captive individuals rather than a naturally occurring population within the Project Area.

All other recorded reptile and amphibian species are classified as Least Concern on the IUCN Red List and were observed to be locally abundant where suitable habitat conditions were present. Notably, Desert Lidless Skink (*Ablepharus deserti*) was widespread across the study area.

The list of herpetofauna recorded during the survey has been provided in Table 9-6.

**Table 9-6 List of Herpetofaunal Species Recorded**

| SN | Common Name | Scientific Name | UzRDB | IUCN | Numbers |
|---|---|---|---|---|---|
| 1 | Green Toad | *Bufo viridis* | - | LC | 2 |
| 2 | Eurasian Marsh Frog | *Pelophylax ridibundus* | - | LC | 5 |
| 3 | Central Asian Tortoise | *Testudo horsfieldii* | 2(VU) | VU | 2 |
| 4 | Sheltopusik | *Pseudopus apodus* | - | LC | 3 |
| 5 | Desert Lidless Skink | *Ablepharus deserti* | - | LC | 12 |
| 6 | Dice Snake | *Natrix tessellata* | - | LC | 2 |

Sheltopousik

Desert Lidless Skink

**Figure 9-13 Photo-documentation of the Herpetofaunal Species Observed**

### 9.3.3.8 Invertebrates

The invertebrate baseline was supplemented through a desktop review of available GBIF, iNaturalist and published literature for the Tashkent Region and Chirchiq River basin. The available information indicates that the wider landscape supports a typical assemblage of invertebrates associated with irrigated agricultural land, field margins, ruderal vegetation, irrigation channels, fishponds and freshwater habitats. Recorded groups include Odonata, Lepidoptera, Hymenoptera and Coleoptera. Most species for which an IUCN assessment is available are classified as Least Concern, and no species of elevated conservation concern were confirmed within the Project site. Two nationally Vulnerable insect species, Solomon's Buprestid (*Ancylocheira salomonii*) and Tugay Underwing Moth (*Catocala remissa*), are reported from the wider Tashkent region and may potentially occur where suitable mature poplar stands are present[15]. The species presented in **Table** 9-7 represent records from the wider regional landscape and may not be interpreted as species confirmed within the Project site.

[15] Red Book of the Republic of Uzbekistan. Vol. II: Animals. Under the general editorship of J. A. Azimov. Tashkent: Tasvir Publishing House, 2019. 392 p.

**Table 9-7 Invertebrates known from Wider Region**

| No | Common Name | Scientific Name | IUCN Red List Status |
|---|---|---|---|
| 1 | Common Bluetail | *Ischnura elegans* | LC |
| 2 | Small Bluetail | *Ischnura pumilio* | LC |
| 3 | Blue Emperor Dragonfly | *Anax imperator* | LC |
| 4 | Lesser Emperor | *Anax parthenope* | LC |
| 5 | Black Pennant | *Selysiothemis nigra* | LC |
| 6 | Scarlet Skimmer | *Crocothemis servilia* | LC |
| 7 | Black-tailed Skimmer | *Orthetrum cancellatum* | LC |
| 8 | White-tailed Skimmer | *Orthetrum albistylum* | LC |
| 9 | Slender Skimmer | *Orthetrum sabina* | LC |
| 10 | European Paper Wasp | *Polistes dominula* | NE |
| 11 | Watt's Paper Wasp | *Polistes wattii* | NE |
| 12 | Oriental Hornet | *Vespa orientalis* | NE |
| 13 | Mediterranean Potter Wasp | *Eumenes mediterraneus* | NE |
| 14 | Mason Wasp | *Euodynerus strigatus* | NE |
| 15 | Mason Wasp | *Odynerus melanocephalus* | NE |
| 16 | Common Blue | *Polyommatus icarus* | NE |
| 17 | Old World Swallowtail | *Papilio machaon* | NE |
| 18 | Painted Lady | *Vanessa cardui* | LC |
| 19 | Seven-spotted Ladybird | *Coccinella septempunctata* | NE |
| 20 | Variegated Ladybird | *Hippodamia variegata* | NE |
| 21 | Harlequin Ladybird | *Harmonia axyridis* | NE |
| 22 | Solomon’s Buprestid | *Ancylocheira salomonii* | NE |
| 23 | Tugay Underwing Moth | *Catocala remissa* | NE |

#### 9.3.3.9 Critical Habitat

Preliminary screening for any triggers of a CH/PBF determination was conducted following the most recent guidance for such issued by IFC and EBRD. The Project area does not have any highly unique or threatened ecosystem types or distinctive evolutionary processes that could result in a CH determination under IFC CH criteria 4 or 5 or EBRD Criterion 1, hence the CH screening was then accordingly limited to species, and multi-species groupings of biological taxa. A master list of potential CH/PBF trigger species was first compiled by reviewing the IBAT report[16], the IUCN red list of threatened species[17], the eBird database[18], and the national redlist. From this master list, species falling into the following categories were considered to have negligible likelihood of being affected by the Project, and were eliminated:

[16] IBAT PS6 & ESS6 Report. Generated under licence 39087-85860 from the Integrated Biodiversity Assessment Tool on 14 May 2025 (GMT). www.ibat-alliance.org

[17] https://www.iucnredlist.org/

[18] https://ebird.org/home

- species that are extinct from the country/region;
- species that occur in Uzbekistan only as extreme rarities (i.e. vagrants or accidentals);
- species with no geographic and/or ecological overlap with the Project area.

The list of secondary resources review during CHA are provided in Table 9-8.

**Table 9-8 List of Secondary Resources Reviewed**

| SN | Data Source | Purpose |
|---|---|---|
| 1 | IUCN Red List for Threatened Species Online Version 2025-2 | It is the world's most comprehensive inventory of global conservation status of species. It provides a list of threatened species by classifying them under different categories from Least Concern (LC) to Extinct (EX) through an understanding of global distribution, population status and trends of the species. Classification of species, distribution, habitat preference and threats of species are also given. |
| 2 | ebird.org | ebird.org provides a geo-referenced list of identified bird species in a given area. |
| 3 | Alliance for Zero Extinction | The Alliance for Zero Extinction (AZE) is a global initiative aimed at preventing extinctions by identifying and safeguarding sites that are crucial for the survival of endangered species. These sites, known as Alliance for Zero Extinction sites, are locations where species considered to be at the brink of extinction have their last remaining habitat. |
| 4 | Integrated Biodiversity Assessment Tool (IBAT) | It screens the Project landscape for the presence of IUCN threatened, migratory, endemic species and provide a list of potential species for the assessment. |
| 5 | Bird Life International Data Zone | Birdlife International maintains a database of Important Bird Areas (IBAs) with a species list found in these IBAs, measure of sensitivity of these habitats and identifies migratory, congregatory and threatened species in the area. |
| 6 | iNaturalist | An online social network of naturalists, citizen scientists, and biologists built on the concept of mapping and sharing observations of biodiversity across the globe. Areas falling within scoping area were run through this database. |
| 7 | Global Biodiversity Information Facility (GBIF) | GBIF is an international organization that focuses on making scientific data on biodiversity available online. The data are provided by many institutions from around the world; GBIF's information architecture makes these data accessible and searchable through a single portal. |
| 8 | Research Publications | Available research articles, papers related to the target species were referred for understanding the presence/absence in the Project landscape, status, habitat, ecology, population, etc. |

For the final CHA, the list of potential CH/PBF trigger species was revised and updated, based on the results of baseline biodiversity surveys and additional research. Then, a set of distinct Ecologically Appropriate Area of Analyses (EAAAs) were developed for different potential CH/PBF trigger species, based on their ecology, dispersal, and use of space.

With the EAAAs defined, all of the data from baseline surveys and desk-based materials was reviewed against the specific CH definitions and criteria in IFC PS6 (Refer Table 9-9).

The description and justification of the different EAAAs used in the assessment and the results of the assessment are presented in Table 9-10 and Table 9-11. And the map of the EAAAs is provided in Figure 9-14.

**Table 9-9 IFC PS6 CH Criteria with quantitative thresholds**

| Criteria | Thresholds |
|---|---|
| **Criterion 1**: Critically Endangered and Endangered Species | a) Areas that support globally important concentrations of an IUCN Red-listed EN or CR species (0.5% of the global population AND 5 reproductive units of a CR or EN species);<br>b) Areas that support globally important concentrations of an IUCN Red-listed VU species, the loss of which would result in the change of the IUCN Red List status to EN or CR and meet the thresholds at (a).<br>As appropriate, areas containing important concentrations of nationally/regionally listed EN or CR species. |
| **Criterion 2:** Endemic and Restricted-range Species | areas that regularly hold ≥10% of the global population size AND ≥10 reproductive units of a species. |
| **Criterion 3:** Migratory and Congregatory Species | a) areas known to sustain, on a cyclical or otherwise regular basis, ≥1 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle.<br>b) areas that predictably support ≥10 percent of the global population of a species during periods of environmental stress. |
| **Criterion 4:** Highly threatened and/or unique ecosystems | a) Areas representing ≥5% of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN.<br>Other areas, not yet assessed by IUCN, but determined to be of high priority for conservation by regional or national systematic conservation planning. |
| **Criterion 5**: Areas associated with key evolutionary processes | There are no thresholds for Criterion 5. |

**Table 9-10 Ecologically Appropriate Area of Analysis Determination**

| EAAA | Applicable species | Description | Rationale |
|---|---|---|---|
| 1 | Plant species: *Salvia korolkowii* | Entire Project area + 1 km buffer | This EAAA reflects the sessile nature of plant species. The assessment area focuses on the habitat unit within which the species is likely to occur and maintain ecological connectivity through seed dispersal and recruitment processes. In the context of the surrounding agricultural landscape, a 1 km buffer encompasses adjacent areas that may support the same population, providing an ecologically meaningful assessment unit. Moreover, the EAAA is designed to capture all areas where these species could be affected by permanent or temporary soil and vegetation disturbance or modification resulting from the construction and operation of the Project. |
| 2 | Mammal and Reptile species: Marbled Polecat and Central Asian Tortoise | Entire Project area + 5 km buffer | The EAAA for the Marbled Polecat and Central Asian Tortoise was defined based on the movement ecology, home-range characteristics, and dispersal capabilities of these terrestrial species within a fragmented agricultural landscape. The selected extent represents the spatial scale over which individuals are likely to access habitat resources, undertake routine movements. The selection of entire Project footprint and a 5 km radius as EAAA is typical for mammals and reptiles to ensure that all potential direct and indirect impact pathways are adequately captured. This spatial extent considers the mobility of the species and the potential for Project-related effects to extend beyond the immediate project footprint. This buffer is considered sufficient to encompass the likely zone of influence for construction and operational activities while remaining proportionate to the scale of the Project. |
| 3 | Bird species: White-headed Duck, Pallas's Fish-eagle, Egyptian Vulture, Lesser White-fronted Goose, Yellow-eyed Pigeon, Greater Spotted Eagle, Eastern Imperial Eagle, Sociable Lapwing, Great Bustard, Steppe Eagle, European Turtle-dove, Asian Houbara, White Stork, Little Egret, Glossy Ibis, Common Pochard, Other Migratory/Congregatory species. | Entire Project area + 10 km buffer | The EAAA for bird species was defined to reflect the ecological scale at which migratory, congregatory, and wide-ranging species utilize the landscape for foraging, resting, roosting, and movement between habitat features. Although many of these species occupy much larger geographic ranges, Critical Habitat assessments are typically informed by discrete habitat areas that support ecologically important functions, such as congregation, feeding, or stopover use. Within the predominantly agricultural landscape surrounding the Project, this EAAA may encompass the potential network of habitats most likely to function collectively for these purposes, if any, and is therefore considered an appropriate unit for assessing the relative importance of the area to local, seasonal, or migratory populations. The delineation is consistent with IFC GN6 guidance that, for wide- |

| EAAA | Applicable species | Description | Rationale |
|---|---|---|---|
| | | | ranging species, Critical Habitat may be informed by aggregation areas and other habitat features of particular importance to the species |

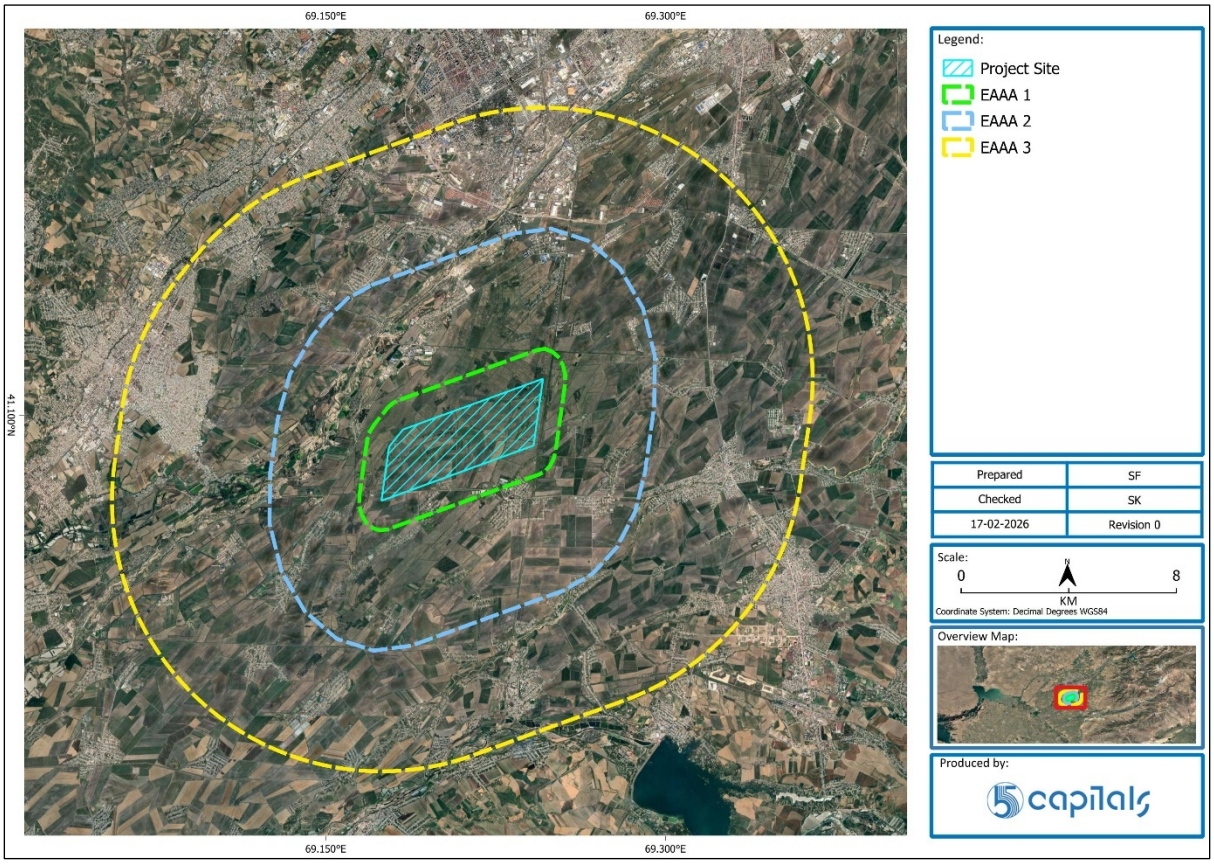



**Figure 9-14 Ecologically Appropriate Areas of Analysis**

**Table 9-11 Critical Habitat Assessment**

| SN | Common Name | Scientific Name | Higher Taxon | IUCN global status | Uzbekistan RDB status | Criterion 1 | Criterion 2 | Criterion 3 | EAAA # | IUCN global population estimate | Determination[19] | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Sociable Lapwing | *Vanellus gregarius* | Bird | CR | | × | | × | 3 | 16,000-17,000 individuals | NA | The species breeds primarily in the steppes of Kazakhstan, with migration routes passing through important stopover sites such as Talimarzhan on the Uzbekistan-Turkmenistan border[20]. Uzbekistan searves as an autumn staging area, supporting substantial migratory flocks, although the species does not breed there. The largest known congregations have been recorded at Talimarzhan Lake.<br><br>No staging sites, observation records, or aggregation areas have been identified within highly modified habitats of the EAAA. Furthermore, the species was not detected during baseline surveys, nor is it reported in available observation records from the project region in the eBird or iNaturalist databases.<br><br>Based on this, the EAAA is unlikely to support globally significant concentrations of the species and therefore is not expected to meet the 0.5% population threshold. |
| 2 | White-headed Duck | *Oxyura leucocephala* | Bird | EN | EN | × | | × | 3 | 7,900-13,100 individuals | NA | The species is a passage migrant in Project area. It prefers large, deeper alkaline or saline lakes and lagoons, often with more open water and less emergent vegetation than in summer. They use inland saline lakes, coastal lakes and lagoons, and even sheltered coastal waters of inland seas, provided these support submerged plants and algae and are not heavily exposed to disturbance[21]. Such habitats are not present within the EAAA.<br><br>The species was not recorded during the baseline surveys and the nearest eBird record of the species is from Aydar Lake located at around 140 km southwest of the Project site[22].<br><br>Given that the EAAA is primarily composed of modified and anthropogenic habitats, lacks major wetlands within the Project vicinity, and there are no known records of the species in the surrounding landscape, it is unlikely that the EAAA supports 0.5% of the global population (approximately 40 individuals). Therefore, Criterion 1 is not met, and CH is not triggered. |
| 3 | Pallas's Fish-eagle | *Haliaeetus leucoryphus* | Bird | EN | EN | × | | | 3 | 1,000-2,499 mature individuals | NA | The species is associated with wetlands, large lakes and rivers[23]. Its passage range overlaps the Project site, and it does not breed in the region.<br><br>Baseline surveys did not record the species within the Project landscape. Furthermore, a review of the eBird and iNaturalist databases indicates no documented sightings in the wider |

[19] **Note:** The identification of Priority Biodiversity Features (PBFs) was based not only on global conservation status but also on evidence of occurrence and ecological relevance to the Project landscape. Accordingly, threatened species with no confirmed records, suitable habitat, or reasonable likelihood of occurrence within the Project area and surroundings were not carried forward as PBFs.

[20] Donald, P. F., et al. (2023). Further surveys at a globally important staging site for migrating Sociable Lapwings (Vanellus gregarius) in Turkmenistan and Uzbekistan. Sandgrouse, 38, Ornithological Society of the Middle East (OSME).

[21] https://www.iucnredlist.org/species/22679814/119403602#habitat-ecology

[22] https://ebird.org/checklist/S47824122

[23] https://www.iucnredlist.org/species/22695130/199521572#habitat-ecology

| SN | Common Name | Scientific Name | Higher Taxon | IUCN global status | Uzbekistan RDB status | Criterion 1 | Criterion 2 | Criterion 3 | EAAA # | IUCN global population estimate | Determination[19] | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Project region, with iNaturalist reporting only a few sporadic records from central Uzbekistan[24].<br><br>Considering this, it is unlikely that the EAAA supports globally significant numbers of the species to trigger CH. |
| 4 | Egyptian Vulture | *Neophron percnopterus* | Bird | EN | VU | × | | | 3 | 18,600-54,000 individuals | NA | The species is known to forage in lowland and montane regions over open, often arid, country, and also scavenges at human settlements[25].<br>A review of the eBird database identified a few sporadic records from the outskirts of Tashkent[26]. However, the species was not recorded within the Project landscape during baseline surveys. The Central Asian Vultures Annual Report 2023-24[27] confirms the reported key aggregation/foraging sites for the species are located in southeast Uzbekistan, approximately 300 southwest of the Project site.<br><br>Given the absence of records within the EAAA and the lack of known dumpsites or vulture feeding sites in the area, it is unlikely that the EAAA supports 0.5% of the global population of the species. |
| 5 | Great Bustard | *Otis tarda* | Bird | EN | CR | × | | × | 3 | 29,600-33,000 mature individuals | NA | A review of the literature indicates that the steppe habitats of the Tashkent, Syrdarya, and Zaravshan valleys historically supported thousands of Great Bustards. However, extensive ploughing during the Soviet agricultural expansion largely eliminated breeding habitats and significantly reduced the extent of suitable land[28].<br><br>According to a recent paper Kashkarov et al. (2023)[29], the most significant regular wintering sites for the Great Bustard in Uzbekistan were identified in Forish and Gallaaral Districts, located more than 150km southwest of the Project site.<br><br>Therefore, in the absence of any wintering or congregation sites within the EAAA and given that no individuals were recorded during baseline surveys, it is unlikely that the EAAA supports globally significant concentrations of the species. |
| 6 | Steppe Eagle | *Aquila nipalensis* | Bird | EN | VU | × | | | 3 | 78,042-110,193 individuals | PBF | All three species of eagles (Steppe, Greater Spotted and Eastern Imperial) are passage migrants in the Project landscape.<br><br>No congregation sites are known for the species within the Project region. Baseline surveys did not record any individuals in the Project area or the surrounding landscape. However, a review of the eBird database confirms that there are occasional |
| 7 | Greater Spotted Eagle | *Clanga clanga* | Bird | VU | VU | × | | | 3 | 3,900-10,000 mature individuals | PBF | |
| 8 | Eastern Imperial Eagle | *Aquila heliaca* | Bird | VU | VU | × | | | 3 | 16,000-20,000 mature individuals | PBF | |

[24] https://www.inaturalist.org/observations?subview=map&taxon_id=5312

[25] https://www.iucnredlist.org/species/22695180/205187871#habitat-ecology

[26] https://ebird.org/map/egyvul1?neg=true&env.minX=&env.minY=&env.maxX=&env.maxY=&zh=false&gp=false&ev=Z&excludeExX=false&excludeExAll=false&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2026

[27] Central Asian Vultures Annual Report 2023/24. Central Asian Vultures, 2025. Web. http://centralasianvultures.org/wp-content/uploads/2025/05/Central-Asian-Vultures-Annual-Report-2023_24_opt-1.pdf

[28] Kashkarov, R.D., Mitropolskaya, Y.O. & Ten, A.G. (2022). The historical and current status of the Great Bustard Otis tarda tarda in Uzbekistan, a key winter refuge. Sandgrouse 44: 29–39.

[29] Kashkarov, R. D., Ten, A., Mitropolskaya, Y. O., & Soldatov, V. (2023). Changes in the modern range of the Great Bustard Otis tarda in Uzbekistan under the influence of agricultural transformation of landscapes and climate. Geography, Environment, Sustainability, 16(1), 140–149. https://doi.org/10.24057/2071-9388-2022-091

| SN | Common Name | Scientific Name | Higher Taxon | IUCN global status | Uzbekistan RDB status | Criterion 1 | Criterion 2 | Criterion 3 | EAAA # | IUCN global population estimate | Determination[19] | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | sighting records from the wider region, including the outskirts of Tashkent.<br><br>However, in line with paragraph GN59 of IFC PS6 GN6, Critical Habitat for migratory or wide-ranging species is determined based on areas of aggregation rather than transit corridors. As the EAAA functions primarily as a passage zone and does not support significant congregations or staging, it is unlikely to hold globally significant concentrations of this species and does not meet the CH threshold. |
| 9 | White Stork | *Ciconia ciconia* | Bird | LC | NT | | | × | 3 | 526,000-588,000 mature individuals | PBF | The species breeds within the Project landscape, where three nesting colonies were documented during the baseline surveys. The population of White Stork in the Project landscape is estimated at roughly 400 individuals.<br><br>According to the IUCN Red List (2026), the species shows an increasing global population trend, with an estimated total population exceeding 500,000 mature individuals. Based on this estimate, the 1% threshold under Criterion 3 would require the regular presence of more than 5,000 individuals within the EAAA. Moreover, according to the 2014-2015 White Stork census conducted by the Uzbekistan Society for the Protection of Birds, the total population of the species in Uzbekistan was estimated at approximately 2,500-2,700 individuals[30].<br><br>Given that the recorded local population is substantially below this threshold, it is highly unlikely that Criterion 3 would be triggered for the designation of Critical Habitat. |
| 10 | Lesser White-fronted Goose | *Anser erythropus* | Bird | VU | VU | × | | × | 3 | 24,000-40,000 individuals | NA | During winter and migration periods, the species primarily inhabits open short-grass habitats within steppe and semi-arid zones, as well as arable farmland, pastures, and meadow[31]. It is considered a passage migrant and is regarded as a rare or accidental visitor in Uzbekistan[32].<br><br>A review of online databases, including eBird and GBIF, indicates only a few sporadic records from the Bukhara region of Uzbekistan. There are no documented records of the species within the EAAA or the surrounding area, and baseline field surveys have not confirmed its presence.<br><br>Given its rarity in Uzbekistan and with no known presence within the EAAA, it is highly unlikely that the site supports the species in numbers approaching the Criterion 3 threshold of 1% of the global population. |
| 11 | Yellow-eyed Pigeon | *Columba eversmanni* | Bird | VU | VU | × | | × | 3 | 15,000-30,000 individuals | NA | It is a resident species in the region and is regarded as one of the rarest pigeons with a predominantly Central Asian |

[30] Kashkarov, R., Atakhodjaev, A., & Mitropolskaya, Y. (2017). Turkestan white stork *Ciconia ciconia* asiatica (Aves: Ciconiiformes) in Uzbekistan: Current size and condition of population. International Journal of Zoology Studies, 2(1), 96–101. https://www.zoologyjournals.com/assets/archives/2017/vol2issue1/2-1-21-748.pdf

[31] https://www.iucnredlist.org/species/22679886/132300164#habitat-ecology

[32] https://avibase.bsc-eoc.org/checklist.jsp?region=UZ

| SN | Common Name | Scientific Name | Higher Taxon | IUCN global status | Uzbekistan RDB status | Criterion 1 | Criterion 2 | Criterion 3 | EAAA # | IUCN global population estimate | Determination[19] | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | distribution. It nests mainly in the valleys of the Syr Darya and Ili Rivers in Kazakhstan[33].<br><br>Although the species was not recorded during the baseline surveys, the eBird database indicates a few observations from the western region of Uzbekistan. Given the absence of known aggregation or breeding sites within the EAAA, it is unlikely that the species occurs in globally significant concentrations within the landscape. |
| 12 | European Turtle-dove | *Streptopelia turtur* | Bird | VU | VU | × | | | 3 | 19,300,000-71,400,000 individuals | PBF | The species prefers a wide variety of woodland types, as well as steppe and semi-desert, frequently relying on agricultural land for feeding[34].<br><br>Whie it was not recorded during baseline surveys, Ebird database confirms its presence in the outskirts of Tashkent.<br><br>However, the species has an extremely wide distribution and a large global population, estimated at between 19 and 71 million individuals. Given that the EAAA represents only a very small fraction of its global range, it is unlikely to support a concentration of individuals large enough that its loss would have any measurable effect on the species' global population status and result in an uplisting of its global IUCN status. |
| 13 | Asian Houbara | *Chlamydotis macqueenii* | Bird | VU | VU | × | | | 3 | 33,000-67,000 mature individuals | NA | The species is a native resident and native breeder in much of Uzbekistan. It inhabits open, arid and sparsely vegetated steppe and semi-desert (Launay et al. 1997, Osborne et al. 1997, Mian 2003, Yang et al. 2003) and favours scattered shrubby vegetation, typically comprising xerophytic or halophytic plants. Birds wintering in Iran are also known to visit neighbouring farmland where alfalfa and salad rocket is grown (Aghanajafizadeh et al. 2010).<br><br>Ebird database confirms that majority of the records of the species are primarily from central and western Uzbekistan, mainly Kyzylkum desert areas. It shows no records from the project region and the baseline surveys also did not confirm species presence in the landscape.<br><br>Considering that the EAAA is dominated by modified and anthropogenic habitats and lacks the primary habitats of the species, and additionally, no known records from the area, it is unlikely to support a concentration of individuals large enough that its loss would result in an uplisting of its global IUCN status. |
| 14 | Common Pochard | *Aythya ferina* | Bird | VU | | × | | × | 3 | 1,140,000-1,180,000 individuals | PBF | The species prefers well-vegetated eutrophic to neutral swamps, marshes, lakes and slow-flowing rivers with areas of open water and abundant emergent fringing vegetation[35]. |

[33] B.T. Berdikulov, A.E. Gavrilov, V.O. Ilina, G. Song, F.M. Lei "Autumn Migration of the Rare Yellow-Eyed Pigeon Columba eversmanni from Western Tian Shan (Tanyrtau), Kazakhstan," Ardea, 112(1), 21-30, (24 January 2024)

[34] https://www.iucnredlist.org/species/22690419/154373407#habitat-ecology

[35] https://www.iucnredlist.org/species/22680358/205288455#habitat-ecology

| SN | Common Name | Scientific Name | Higher Taxon | IUCN global status | Uzbekistan RDB status | Criterion 1 | Criterion 2 | Criterion 3 | EAAA # | IUCN global population estimate | Determination[19] | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | The Tuyabuguz Reservoir IBA, approximately 11 km southeast of the Project site, outside the EAAA, supports this species, which is designated as a trigger species for the IBA.<br><br>Although no individuals were observed during the baseline surveys within the EAAA, records from the eBird database confirm the species' presence along the Chirchiq River within the EAAA. Notably, large congregations of up to 4,100 individuals have been reported from the Tuyabuguz IBA[36]. The official estimate by BirdLife International reports that the species' population within the IBA ranges between 250 and 6,000 individuals[37].<br><br>To meet the CH threshold under Criterion 3 (1% population threshold), the EAAA would need to support at least 11,400 individuals. Given that current records are substantially below this threshold, it is unlikely that the species would trigger CH designation. |
| 15 | Other Migratory/ Congregatory species | *NA* | Bird | NA | | | | × | 3 | NA | NA | The baseline surveys documented relatively large flocks of several widespread and abundant species. Total seasonal observations exceeding 1,000 individuals were recorded for species such as Common Myna, Eurasian Jackdaw, Eurasian Tree Sparrow, Indian Sparrow, Rock Pigeon, and Rosy Starling. It should be noted that these totals may include repeat counts of the same set of individuals using the site at different times within the season.<br><br>All of these species are classified as Least Concern on the IUCN Red List and have extensive global populations ranging from several hundred thousand to many millions of individuals. In this context, for the site to meet the 1% population threshold criterion, it would need to regularly support exceptionally large numbers relative to global or flyway populations, far exceeding the counts recorded during the surveys.<br><br>Based on this, none of these species are likely to meet the quantitative threshold for triggering Critical Habitat designation. |

[36] https://ebird.org/checklist/S122332343
[37] https://datazone.birdlife.org/site/factsheet/20681-tuyabuguz-reservoir

| SN | Common Name | Scientific Name | Higher Taxon | IUCN global status | Uzbekistan RDB status | Criterion 1 | Criterion 2 | Criterion 3 | EAAA # | IUCN global population estimate | Determination[19] | Rationale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | Marbled Polecat | *Vormela peregusna* | Mammal | VU | VU | × | | | 2 | Not Available | NA | The species has an extremely wide distribution across Asia and Europe; however, it is considered rare throughout much of its range[38]. Its preferred habitats include desert, semi-desert, and steppe ecosystems.<br><br>The baseline survey did not confirm its presence within the Project area or the surrounding landscape. Majority of the EAAA is dominated by modified habitat. Given that the species is classified as Vulnerable and that reliable population data are unavailable, the EAAA can be compared with its overall geographic range as a proxy. The EAAA represents only a very tiny fraction of the species' total distribution range.<br><br>Considering this and the absence of records during the baseline surveys, it is unlikely that the EAAA supports a globally significant population of the species, such that the loss of which would be expected to contribute to an uplisting of its global IUCN status. |
| 17 | Central Asian Tortoise | *Testudo horsfieldii* | Reptile | VU | VU | × | | | 2 | Not Available | PBF | The species prefers dry steppes, sandy or loamy deserts, rocky hillsides, and semi-deserts. The EAAA is dominated by agriculture and anthropogenic land use and does not represent species' primary habitat. However, two individuals of the species were recorded during baseline survey in old graveyard areas. These individuals are attributable to released captive individuals rather than a naturally occurring population within the Project Area.<br><br>Thus, EAAA is unlikely to hold globally significant population of the species, such that the loss of which would be expected to contribute to an uplisting of its global IUCN status. |
| 18 | Корольков мармараги | *Salvia korolkowii* | Plant | VU | | × | | | 1 | 9,000 mature individuals | NA | The species localities are concentrated along tributaries of the Chirchiq River within the mountain ranges northeast to Tashkent along the Uzbekistan-Kyrgystan border[39]. No known localities fall within the EAAA.<br>The baseline surveys did not record this species within the EAAA. Additionally, the species known to occur between elevation range 850m and 1700m[39]. The Project site and EAAA lie between 350-350m asl elevation.<br><br>Considering this, the EAAA is unlikely to hold globally significant concentrations of this species. Thus, it does meet the Criterion 1 threshold to trigger the CH. |

[38] https://www.iucnredlist.org/species/29680/45203971#geographic-range
[39] https://www.iucnredlist.org/species/217557065/217845322#geographic-range

#### 9.3.3.10 CH Conclusion

In conclusion, the CHA identified a total of seven Priority Biodiversity Features (PBF). None of the assessed species triggered a Critical Habitat determination.

In addition to the species identified as PBFs, other biodiversity receptors such as the Little Egret, Glossy Ibis, 10 mammal species, and 6 herpetofaunal species, habitat features etc. were also screened for their likelihood of qualifying as PBF (i.e. threatened habitats, vulnerable species, significant biodiversity features identified by a broad set of stakeholders or governments, or ecological structure and function needed to maintain the viability of the above). However, no additional species or habitat features were identified as PBFs.

It is to be noted that not all PBF species were confirmed during the baseline surveys. However, based on secondary data and their potential to occur within the EAAA, these species have been classified as PBFs on a precautionary basis.

#### 9.3.3.11 Ecosystem Services

Ecosystems provide services that result in beneficial human impacts. A decline or loss of any of these services and their benefits can result in socio-economic impacts that extend beyond environmental damages.

Ecosystems services are divided into four categories (World Resources Institute, 2013 and consistent with the four types outlined in IFC PS6):

- “Provisioning services are the goods or products obtained from ecosystems, such as food, timber, fibre, and freshwater.
- Regulating services are the contributions to human well-being arising from an ecosystem’s control of natural processes, such as climate regulation, disease control, erosion prevention, water flow regulation, and protection from natural hazards.
- Cultural services are the nonmaterial contributions of ecosystems to human well-being, such as recreation, spiritual values, and aesthetic enjoyment.
- Supporting services are the natural processes, such as nutrient cycling and primary production, that maintain the other services.”

IFC PS6 outlines that ecosystem services valued by humans are often underpinned by biodiversity and hence impacts to biodiversity can adversely affect the delivery of ecosystem services.

The Project area is primarily characterized by modified habitats dominated by agricultural land, managed fields with limited presence of natural or semi-natural ecosystems. As such, ecosystem services are primarily provisioning and regulating services associated with agroecosystems. Key provisioning services include crop production, fodder, and limited groundwater abstraction for irrigation and domestic use. Regulating services include soil formation and nutrient cycling, localized flood attenuation through infiltration on permeable agricultural soils, and microclimate regulation. Cultural ecosystem services are mainly linked to the rural landscape value and traditional land-use practices. Given the predominance of already altered and intensively managed land, the Project is not expected to result in significant loss of high-value natural ecosystem services; however, conversion of agricultural land to airport infrastructure will lead to a reduction in provisioning services (crop production) and partial reduction in regulating services (soil permeability, carbon storage). However, these impacts are expected to be minimal.

The blockage or removal of canals and water channels within the Project site may have some impacts on the adjacent farmland. Therefore, a Water Management Plan shall be prepared to address any potential impacts and maintain associated ecosystem services.

## 9.4 Sensitive Receptors

Sensitive receptors that could be potentially affected by project are identified based on conservation status, ecological importance, and proximity to the project footprint and airspace.

**Table 9-12 Terrestrial Ecology Sensitive Receptors**

| Receptor | Sensitivity | Justification |
|---|---|---|
| White Stork nesting colonies (~400 individuals within 5 km radius) and six other PBF species | High | Resident, colonial nesting species listed in as NT in Red Data Book of Uzbekistan; significant local population; vulnerable to strike, disturbance, and habitat modification;<br>PBFs are IUCN VU species. |
| Other UzRDB-listed bird species (Little Egret, Glossy Ibis) | High | Nationally threatened migratory/resident species using the Project airspace and adjacent habitats; vulnerable to collision and disturbance during migration/breeding. |
| Migratory and resident avifauna (56 species recorded; including flocking species such as Rosy Starling, Barn Swallow, Rock Pigeon) | Medium | Regular use of airspace during spring and autumn; potential for bird-aircraft strike risk; no globally significant concentrations identified; non-threatened species. |
| Mammals (10 recorded species) | Low | All IUCN Least Concern; ecologically flexible and adapted to modified agricultural habitats. |
| Reptiles and amphibians (6 species recorded; Central Asian Tortoise – IUCN VU, UzRDB 2(VU); others common) | Medium | Nationally and globally threatened species (tortoise) present in low numbers (likely escaped captives); other species common in canals and fallows; vulnerable to habitat loss and direct mortality. |
| Vegetation and habitats (predominantly irrigated arable land, fruit gardens, irrigation channels/ditches/woodland belts, old graveyards, abandoned pasture) | Low | Modified anthropogenic habitats with no threatened or endemic plant species confirmed. |

## 9.5 Potential Impacts, Mitigation, and Management

### 9.5.1 Construction Phase

#### 9.5.1.1 Habitat and Vegetation Loss

Construction activities such as site clearance, earthworks, runway/taxiway construction, building erection, access road development, drainage modifications, etc. will result in direct but localized habitat loss, fragmentation, disturbance, and indirect impacts such as due to noise, dust, light, pollution, etc. on local biodiversity.

The permanent conversion of approximately 13,000 Ha of predominantly irrigated arable land, which is the dominant habitat type in the Project area, and associated linear features (irrigation channels, ditches, boundary strips, and woodland belts) will result in the direct loss of foraging, roosting habitat for common agricultural-adapted species. This includes resident birds as well

as small mammals. Importantly, the irrigated fields and associated channels function as key foraging habitats for White Stork, which was frequently observed feeding across the Project site. The conversion of these habitats to hardstanding and intensively managed airport grassland will reduce local foraging resources and will displace storks to more distant or adjacent fields and wetlands. This may potentially increase flight distances and energetic costs and reinforcing their reliance on remaining habitats outside the Project footprint.

Moreover, 116 native plant species of the total 132 species recorded in the Project area, the clearance will primarily affect ruderal and crop-associated vegetation. No significant natural habitats will be affected, as the entire Project area is predominantly classified as modified anthropogenic habitat with no confirmed threatened or endemic plant species.

For trees and shrubs located within the Project area and not included in the State Forest Fund, a detailed inventory will be undertaken prior to commencement of site clearance to determine their species composition, quantity, and assessed value in accordance with national regulatory requirements. Where technically feasible, identified trees and shrubs will be transplanted following the procedures established by applicable legislation. All tree cutting and transplantation activities will be implemented in coordination with and under the supervision of the relevant territorial divisions of the National Committee on Ecology and Climate Change, and subject to obtaining the necessary permits and approvals as required by law.

Based on the information currently available, significant cumulative impacts are considered unlikely. No other existing or planned developments with the potential to contribute materially to cumulative effects have been identified within the Project's area of influence, apart from the associated facilities assessed as part of this ESIA. While additional development may occur in the surrounding area in the future, details of such projects are not currently available.

#### 9.5.1.2 Direct Mortality

Earthworks, excavation, soil compaction activities along with vehicle movements such as of construction trucks, heavy equipment, etc. on unpaved site roads and access routes present a direct risk of crushing or injury to ground-dwelling reptiles and small mammals. However, no IUCN threatened or nationally protected species of mammals or reptiles was recorded during baseline surveys except the Central Asian Tortoise (IUCN VU, UzRDB 2(VU)). Total two individuals of this species were recorded in old graveyards and are likely escaped or released captives with no preferred natural habitat present within Project area. These individuals are particularly vulnerable to construction impacts if present in remnant patches.

#### 9.5.1.3 Disturbance to Fauna

Noise from heavy machinery (excavators, concrete mixers, etc.), ground vibration, and continuous human presence are likely to cause temporary disturbance, particularly for sensitive colonial and resident species. Other UzRDB-listed species (Little Egret, Glossy Ibis) and breeding residents that utilize the airspace and adjacent fishponds/irrigation channels may also experience elevated stress.

#### 9.5.1.4 Invasive species

Construction activities may increase the risk of introducing or spreading invasive or opportunistic plant species through soil movement, vehicle traffic, and imported construction materials. The access routes and surrounding habitats may provide suitable conditions for invasive species establishment or spread if not properly managed. This impact can be mitigated through appropriate biosecurity and site management measures.

#### 9.5.1.5 Pollution and Runoff Effects on Chirchik River

During the construction, activities such as excavation, material stockpiling, and the operation of heavy equipment may generate sediment and pollutants that could enter nearby irrigation

channels, with the possibility of downstream movement toward the Chirchik River. Accidental spillage of fuels, oils, concrete wash water, or other hazardous materials also present a risk of surface water contamination if appropriate safeguards are not in place. Elevated turbidity and sediment deposition could temporarily disturb aquatic habitats, potentially affecting fish and other faunal species associated with these habitats. However, considering that the Project has minimal direct interaction with the river, any impacts on aquatic ecosystems are anticipated to be localized, short in duration, and minor in magnitude.

**Table 9-13 Impacts Assessment Summary – Biodiversity during Construction**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Habitat and vegetation loss | Moderate | Floral species, faunal species associated with those habitats | Medium | Moderate | Minor |
| Direct mortality | Minor | Reptiles and small mammals | High | Minor | Negligible |
| Disturbance to fauna | Moderate | Breeding birds (White Storks) and mammals and reptiles | High | Moderate | Minor |
| Invasive species spread | Minor | Flora | Low | Minor | Negligible |
| Pollution and Runoff Effects on Chirchik River | Minor | Faunal and floral species associated with aquatic habitats | High | Minor | Negligible |

**Proposed Mitigation Measures**

Mitigation measures for habitat and vegetation loss

- A detailed tree enumeration and inspection will be undertaken as a regulatory requirement and as directed by the local authorities, the transplanting or compensatory plantation exercise will be carried out.
- Mature poplar trees within the Project footprint will be identified, if any, during the detailed tree enumeration. Where such trees are proposed for removal, they will be inspected for evidence of established and ecologically meaningful use by nationally Vulnerable insect species including Solomon's Buprestid and Tugay Underwing Moth, such as breeding activity or other evidence indicating that the trees function as habitat for the species. Where confirmed habitat use is identified, avoidance or retention will be considered where practicable, or other appropriate measures (such as transplanting or compensatory plantation) will be agreed with the local authority.
- All vehicles, plant, and construction equipment shall operate exclusively within the defined Project boundaries and designated access routes. Off-road driving and unauthorised access to adjacent areas shall be strictly prohibited.
- Clearing of vegetation shall be limited to the approved Project footprint. No vegetation removal, disturbance, or damage shall occur outside the demarcated work areas.
- Waste management measures shall be implemented in accordance with the approved Waste Management Plan to minimise the risk of environmental contamination and pollutant exposure.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|

- Ensure that construction material such as fill material, quarried rock, etc. is not sourced from high biodiversity value areas or protected areas, and that the appropriate licences are in place for their extraction, if applicable.

Mitigations for direct mortality

- Pre-clearance surveys will be conducted by qualified ecologists prior to any ground disturbance in areas of suitable habitat (old graveyards, fallow patches, canal banks) to identify Central Asian Tortoise individuals or burrows; any encountered individuals shall be safely captured, transported, and released to suitable habitat outside the Project footprint.
- A Chance Find Procedure shall be implemented for all fauna encounters during excavation or grading; work shall stop immediately in the vicinity, and the site E&S Manager shall be notified for assessment and relocation/rescue.
- All construction vehicles shall maintain a maximum speed limit of 20 km/h on site roads and access routes.
- Daily fauna mortality sweeps shall be conducted along active work zones; any incidents shall be recorded, photographed, and reported within 24 hours.
- No open trenches or excavations, if any, shall be left uncovered overnight; temporary fencing or covers shall be used to prevent entrapment of small mammals and reptiles

*Note:* As any significant potential impacts have not been identified on the identified PBFs, the NNL is considered achievable through embedded and operational mitigation measure.

Mitigations for disturbance to fauna

- If feasible, construction activities with high noise/vibration levels, if required, shall be scheduled outside the core White Stork breeding season (April–July).
- Pre-clearance checks must be carried out to identify any active nests of White Storks within the Project footprint. In case any active nests are found (including isolated nests on poles/ transmission line towers, etc.), a 100-200m no-disturbance buffer zone shall be established around each nest until fledging is complete (typically late July–August); Ongoing periodic monitoring of White Stork colonies/nests in the immediate vicinity of the Project site shall be undertaken to track any major impacts on nesting activities or success and any displacement.
- Outside the breeding season and subject to regulatory approval, the existing white stork nest within the airport footprint will be carefully removed under specialist supervision, with at least one alternative nesting platform constructed at an appropriate, safe location to maintain local nesting opportunities, aimed at achieving NNL.
- All construction workers and persons on site will be given instructions on how to report sightings of relevant fauna during construction and not to harm any animals if encountered but allow the animals to retreat into the neighbouring areas outside footprints.
- Artificial lighting shall be designed and directed to minimise light spill beyond camp areas and Project boundaries.
- Hunting, trapping, or intentional harm to wildlife by Project personnel shall be strictly prohibited.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Any fauna mortality or injury observed on site, including incidents involving construction vehicles, shall be recorded and formally reported by the site team on the day of occurrence.<br>• A maximum speed limit of 20 km/h shall be enforced within the construction site to reduce the risk of fauna mortality from vehicle collisions.<br><br><u>Mitigations for invasive species spread</u><br>• Vehicle and equipment hygiene measures shall be implemented, including inspection and cleaning of machinery, vehicles, and tools prior to mobilisation and when moving between work areas, to prevent the spread of invasive species.<br>• Certified clean materials, including fill, aggregates, and landscaping materials shall be used to ensure they are free of invasive species seeds or plant fragments.<br><br><u>Mitigations for pollution and runoff effects on Chirchik River</u><br>• Install silt fences, sediment traps, etc. around all excavation areas, stockpiles, and drainage outfalls to prevent sediment-laden runoff entering irrigation channels.<br>• Prohibit stockpiling of excavated material or hazardous substances (fuels, oils, chemicals) within 50 m of active irrigation channels or drainage ditches.<br>• No direct discharge of construction wastewater (e.g., concrete washout, vehicle/machine washing) to channels; provide designated wash-down areas. | | | | | |

### 9.5.2 Operation Phase

#### 9.5.2.1 Bird-Aircraft Strike Risk (Wildlife hazards)

The faunal baseline confirms that the Project airspace is used by several large and/or flocking birds such as White Stork, pigeons, starlings, etc. foraging, moving between nearby nesting colonies, irrigated fields, irrigation channels, etc. which coincides with the critical low-altitude envelope for aircraft during take-off, climb, approach and landing. Analysis of the U.S. National Wildlife Strike Database (1990-2004; Dolbeer 2006)[40] indicates that approximately 74% of all reported bird strikes and 66% of strikes causing substantial damage occur at or below 500 ft above ground level (AGL), i.e. within the airport environment out to about 10,000 ft horizontally from the runway thresholds where aircraft are typically below 500 ft AGL. For the Project, this implies that the majority of bird-aircraft collisions may potentially occur in the low-altitude corridor where aircraft movements intersect with the local flight heights of foraging birds and White Storks, and that strike-prevention measures must focus on reducing bird use of habitats within the airport perimeter and approach/ departure zone, particularly below 500 ft AGL.

Baseline surveys confirmed that the airspace is intensively utilised by around 56 recorded bird species. Vantage point surveys documented peak spring movements of White Stork with total over 800 observations at each vantage point. Additionally, flocking species include Common Myna (1,149 observations at VP1), Rosy Starling (1,000 at VP1 during breeding), Barn Swallow (1,067 at VP2), Rock Pigeon (9,527 at VP1), Eurasian Jackdaw (3,000 at VP1), and waterfowl such as Black-winged Stilt (513-522) and Mallard (63-44) foraging in fish ponds and irrigation channels in the landscape. Although the total number of observations does not reflect the actual abundance of those species in the landscape, it clearly indicates a high level of airspace use.

Bird–aircraft strike risk arises from spatial and temporal overlap between aircraft operations within the low-altitude operational corridor (take-off, climb-out, approach, landing) and regular bird movements, including:

- Daily commuting flights between nesting colonies and feeding areas;
- Soaring and thermal use by large-bodied species;
- Flocking movements of pigeons, starlings, and corvids;
- Attraction to irrigated fields, standing water in the surrounding landscape.

Large-bodied species (e.g., White Stork) pose higher severity risk due to their mass and potential for engine ingestion or windscreen impact, while flocking species (e.g., pigeons, starlings, jackdaws) increase the probability of multiple-bird strike events. Considering the documented intensity of bird activity within the Project airspace, the presence of medium- to large-bodied and flocking species, and the anticipated predominantly local to regional impacts on avian species, the magnitude of impact is assessed as Moderate, while the overall impact significance pre-mitigation is considered Major.

#### 9.5.2.2 Chronic Disturbance due to Noise and Light

During the operational phase, aircraft movements, ground handling activities, service vehicles, and auxiliary equipment will generate both continuous background noise and intermittent peak noise events. Elevated noise levels may disturb wildlife in areas surrounding the airport, potentially resulting in localized displacement, altered foraging behaviour, reduced habitat utilization, or disturbance to nesting activities, particularly during sensitive breeding periods.

[40] Dolbeer, Richard A., "Height Distribution of Birds Recorded by Collisions with Civil Aircraft" (2006). USDA National Wildlife Research Center - Staff Publications. 500.

Night-time lighting from runways, taxiways, aprons, and terminal facilities may further influence nocturnal species by modifying movement patterns and behavioural responses. While the surrounding landscape is predominantly modified and supports disturbance-tolerant species, localized effects cannot be ruled out, particularly in relation to nearby breeding bird colonies. Overall, operational noise and lighting impacts on biodiversity are expected to be limited and spatially confined.

**Table 9-14 Impacts Assessment Summary – Biodiversity during Operation**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Bird-aircraft strike | Moderate | Large-bodied birds including breeding White Storks, medium sized flocking birds | High | Major | Minor |
| Chronic disturbance due to noise and light | Moderate | Breeding birds and mammals | High | Moderate | Minor |

**Proposed Mitigation Measures**

Mitigation measures bird-aircraft strike risk

- Develop and implement a site-specific Wildlife Hazard Management Plan (WHMP) in accordance with International Civil Aviation Organization (ICAO) Annex 14 and guidance in ICAO Doc 9137 Part 3 and ICAO Doc 9981. The WHMP shall include a formal wildlife risk assessment (species identification, strike history, seasonal patterns, likelihood–severity ranking), defined roles and responsibilities, training requirements, standard operating procedures for wildlife control, reporting protocols, performance indicators, and annual review within the airport Safety Management System (SMS).
- Biodiversity monitoring requirements and commitments shall be incorporated into the BMEP and WHMP, including monitoring duration and seasonal survey requirements for the identified PBF species, targeted mitigation measures, and the operational wildlife hazard management measures.
- Established biologically based fatality thresholds that are protective of populations of bird species potentially affected by the airport aviation activities; more precise thresholds will be defined as collision data becomes available during operation activities.
- Implement habitat management measures to reduce wildlife attractants within the airport and immediate surroundings, including maintaining runway and taxiway grass height at approximately 15-20 cm, eliminating standing water through effective drainage and maintenance, preventing the establishment of fruit-bearing trees, dense shrubs, or ornamental water features, using covered, wildlife-proof waste bins, and ensuring prompt waste collection and disposal.
- Deploy active wildlife dispersal measures by trained personnel during daylight hours and peak bird activity periods (e.g., dawn/dusk, migration seasons), using appropriate and rotating techniques such as pyrotechnics, distress calls, lasers, falconry, or other approved deterrent systems to prevent habituation.
- Maintain a comprehensive bird strike and wildlife incident log recording date, time, species (confirmed where possible), location, aircraft type, phase of flight, damage level, and weather conditions, analyse data quarterly to identify trends and high-risk periods, and submit required reports to national authorities.
- In addition to recording and analysing bird strike incidents, implement a monitoring programme for the identified White Stork nesting colonies in the vicinity of the project area. Monitoring shall be focused on the breeding season and carried out through periodic visits and observations by experts for three years after construction to assess any impacts of the airport operations.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Potential Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Define clear adaptive management trigger thresholds such as repeated strike events involving a specific species, breeding failure, nest abandonment, marked decline in colony size, etc. If significant impacts are identified, develop and implement corrective measures in consultation with qualified ornithologists and relevant authorities. Measures may include targeted habitat modification, provision of alternative nesting platforms in safe locations away from flight paths, or other evidence-based interventions that balance aviation safety with species conservation.<br>• Review the effectiveness of all mitigation measures annually, or following significant wildlife incidents, and update the WHMP accordingly to ensure continuous improvement and alignment with evolving ICAO guidance and best international practice.<br><br><u>Mitigations for chronic disturbance due to noise and light</u><br>• Implement ICAO-recommended noise abatement operational procedures.<br>• Design and operate airport lighting limiting light spill, through the use of shielded, downward-directed fixtures and lighting intensity set to the minimum necessary for aviation safety.<br>• Implement monitoring and adaptive management, including periodic review of aircraft noise contours and wildlife observations, to verify that ICAO-aligned procedures are effectively minimizing disturbance to nearby habitats and breeding bird colonies. | | | | | |

## 9.6 Monitoring

The EPC Contractor and the Project Company will implement biodiversity monitoring during the construction, commissioning, and operational phases of the Project in accordance with Biodiversity Management and Monitoring Plan and the Wildlife Hazard Management Plan (WHMP).

Monitoring will be implemented as part of an adaptive management framework, whereby results are regularly reviewed and mitigation measures adjusted where necessary. Monitoring outcomes will be documented through periodic reporting and used to inform corrective actions.

The detailed monitoring methodology shall be defined in the Project's BMEP and, where relevant, integrated into the WHMP.

## 9.7 Wildlife Hazard Management Plan

The Project Company shall develop, implement and maintain a Wildlife Hazard Management Plan (WHMP) prior to commencement of airport operations. The WHMP will provide the operational framework for identifying, assessing and managing wildlife-related risks to both aviation safety and biodiversity, and will be developed in accordance with applicable national requirements and relevant ICAO guidance.

The WHMP will include: (i) identification and mapping of wildlife attractants and higher-risk areas within and around the airport; (ii) species-specific risk assessment based on baseline surveys, seasonal movements and subsequent monitoring; (iii) procedures for habitat and attractant management, including management of grassland, drainage features, waste and standing water; (iv) wildlife deterrence and, where necessary, controlled intervention procedures; (v) systematic recording and investigation of wildlife strikes and mortality; and (vi) defined roles, responsibilities, reporting arrangements and emergency response procedures.

The WHMP will be finalized before commissioning/commencement of flight operations, with responsibility for implementation assigned to the Project Company/airport operator and suitably qualified wildlife-management personnel. The plan will be informed by the ESIA biodiversity baseline and updated using operational monitoring and strike data. Its effectiveness will be reviewed periodically, and mitigation measures will be adapted based on ongoing monitoring, repeated strike events, mortality of species of conservation concern, or other emerging risks.

**Table 9-15 Monitoring Plan for Terrestrial Ecology**

| Monitoring | Parameters | Frequency & Duration | Location | Relevant Management Plan |
|---|---|---|---|---|
| **Construction Phase** | | | | |
| Vegetation Clearance | Area to be cleared, presence of protected species, invasive species occurrence | Prior to clearance and periodic inspections during active earthworks | Project footprint, laydown areas, access roads | Biodiversity Management and Monitoring Plan |
| Fauna Disturbance | Presence of breeding activity, nesting birds, evidence of displacement | Weekly inspections during peak construction overlapping with breeding season | Construction site and adjacent areas | Biodiversity Management and Monitoring Plan |
| Wildlife Mortality | Incidental mortality (vehicle strikes, trench entrapment) | Ongoing recording throughout construction | Access roads, excavation areas, etc. | Biodiversity Management and Monitoring Plan |
| **Operation Phase (WHMP + Adaptive Management)** | | | | |
| Wildlife-Aircraft Interaction (in line ICAO guidelines) | Species observed, flock size, strike records | Continuous recording of strike data; quarterly ecological review | Airfield, approach/departure corridors | Wildlife Hazard Management Plan (WHMP) |
| Breeding Bird Monitoring | Presence and status of nesting colonies in surrounding landscape | Seasonal surveys (breeding period) | Identified nesting sites within zone of influence (for three years apter construction) | Wildlife Hazard Management Plan (WHMP) |

# 10.0 Topography, Geology, Soil and Hydrogeology

## 10.1 Applicable Requirements and Standards

### 10.1.1 National Regulations

The soil quality standards are defined in the SanN&R № 0191-05 dated from 2005 “Sanitary Maximum Permitted Concentrations (MPC) and tentatively acceptable concentration of exogenous pollutants in the soil”. These are listed in Table 10-1.

**Table 10-1 Maximum Permissible Concentrations for Soil**

| Parameter | Uzbek Standard (mg/kg) |
|---|---|
| Antimony | 4.5 |
| Arsenic | 2.0 |
| Chromium | 6.0 |
| Cobalt | 5.0 |
| Copper | 3.0 |
| Mercury (organic) | 2.1 |
| Lead | 32.0 |
| Molybdenum | 10.0 |
| Nickel | 4.0 |
| Zinc | 23.0 |
| Benzene | 0.3 |
| Toluene | 0.3 |
| Styrene (vinylbenzene) | 0.1 |
| Vanadium | 150.0 |
| Nitrates | 130.0 |
| Sulphate (H2SO4) | 160.0 |

There are local regulations[41] that establishes the Maximum Permittable Concentration (MPC) of pollutants for water bodies including groundwater depending on their primary use which is shown in Table 10-2.

[41] SanR&N No. 0083-24 for the Protection of Underground and Surface Water Bodies, Appendix 5, 2024.

**Table 10-2 Permissible chemical concentrations in groundwater and surface water bodies**

| Pollutants | Communal[42] | Irrigation for direct use with-out blending. FAO[43] |
|---|---|---|
| COD | 30 | - |
| BOD20, $mgO_2/L$ | 3-6 | - |
| pH | 6.5-8.5 | 6.5-8.5 |
| Mineralization | 1000 | 0-2000 |
| Sulphates | 500 | 1900 |
| Chlorides | 350 | 300 |
| Ammonium nitrogen + (ammonium salt) (NH4) | 2 | 0-5 |
| Nitrogen | 25 | - |
| Nitrogen nitrite | 0.5 | 0-10 |
| Nitrite | 3.0 | - |
| Nitrate | 45 | - |
| Phosphate (PO3-) | 1 | 0-2 |
| Ether soluble | 0.8 | - |
| Oil products | 0.3 | |
| SAS | 0.5 | |
| Phenol | 0.001 | |
| Fluorine (F) | 1.5 | |
| Arsenic (As) | 0.01 | |
| Iron (Fe) | 0.3 | |
| Chromium (Cr6+) | 0.1 | |
| Copper (Cu) | 1 | |
| Zinc (Zn) | 5 | |
| Cyanides | 0,07 | |
| Lead (Pb) | 0,01 | |
| Nickel (Ni) | 0,02 | |
| Cadmium (Cd) | 0,001 | |
| Cobalt (Co) | 0.1 | |
| Molybdenum (Mo) | 0,07 | |
| Strontium (Sr2+) | 7 | |
| Selenium (Se) | 0.01 | |

[42] SanR&N No. 0083-24 for the Protection of Underground and Surface Water Bodies, Appendix 6, 2024
[43] FAO Guidelines, Water Quality for Agriculture, 1985 (1994) http://www.fao.org/3/t0234e/t0234e01.htm

| Pollutants | Communal[42] | Irrigation for direct use without blending. FAO[43] |
|---|---|---|
| Mercury (Hg) | 0,0005 | |
| Boron (B) | 0.5 | 0-7-3 |

### 10.1.2 Lender Requirements

IFC Performance Standard 3 on 'Resource Efficiency and Pollution Prevention' requires the client and/or the Project to:

- *Avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities; and*
- *Prevent the release of pollutants to water and land due to routine, non-routine, and accidental circumstances, or when not feasible, minimize and/or control the intensity and mass flow of their release.*

EBRD Environmental and Social Requirement 3 – "Resource Efficiency and Pollution Prevention" requires that:

The client's environmental and social assessment process will determine the appropriate pollution prevention and control methods, technologies and practices or techniques to be applied to the project. The assessment will take into consideration the characteristics of the facilities and operations that are part of the project, the project's geographical location and local ambient environmental conditions. The client will provide the Bank with emission and discharge data proportionate to the nature and scale of the project's risks and impacts.

Good Industry Practice

The Dutch Standards list Target and Intervention Values. Target values refer to background concentrations that occur naturally in soils (based on the Netherlands) and are considered to reflect good soil quality that requires no remediation (no action). Intervention Values relate to cases of soil and groundwater contamination which are dangerous to the health of humans and the natural environment. These levels of contamination typically require remediation and appropriate treatment and disposal. The Dutch Standards for the most significant pollutants are presented in Table 10-3. Where a parameter is not covered by the National Standards shown in Table 10-2 above, the Dutch Standards will be referenced for benchmarking purposes.

**Table 10-3 Dutch Standards for Soil and Groundwater Contamination (2013)**

| Parameters | Soil (mg/kg dry matter) | | Groundwater (µg/l) | |
|---|---|---|---|---|
| | Target value* | Intervention value | Target value | Intervention value |
| **Heavy Metals** | | | | |
| Arsenic | 29 | 76 | 10 | 60 |
| Barium | 160 | - | 50 | 625 |
| Cadmium | 0.8 | 13 | 0.4 | 6 |
| Chromium | 100 | - | 1 | 30 |
| Chromium III | - | 180 | - | - |
| Chromium IV | - | 78 | - | - |

| Parameters | Soil (mg/kg dry matter) | | Groundwater (µg/l) | |
|---|---|---|---|---|
| | Target value* | Intervention value | Target value | Intervention value |
| Cobalt | - | 190 | 20 | 100 |
| Copper | 36 | 190 | 15 | 75 |
| Lead | 85 | 530 | 15 | 75 |
| Mercury | 0.3 | 36 (inorganic)<br>4 (organic) | 0.05 | 0.3 |
| Molybdenum | 3 | 190 | 5 | 300 |
| Nickel | 35 | 100 | 15 | 75 |
| Zinc | 140 | 720 | 65 | 800 |
| **Aromatic Compounds** | | | | |
| Benzene | 0.01 | 1.1 | 0.2 | 30 |
| Ethyl benzene | 0.03 | 110 | 4 | 150 |
| Toluene | 0.01 | 32 | 7 | 1000 |
| Xylene (sum) | 0.1 | 17 | 0.2 | 70 |
| Styrene (vinylbenzene) | 0.3 | 86 | 6 | 300 |
| Phenol | 0.05 | 14 | 0.2 | 2000 |
| Cresols (sum) | 0.05 | 13 | 0.2 | 200 |
| **Chlorinated Hydrocarbons** | | | | |
| *Volatile Hydrocarbons* | | | | |
| monochloroethene (vinyl chloride) | 0.01 | 0.1 | 0.01 | 5 |
| dichloromethane | 0.4 | 3.9 | 0.01 | 1,000 |
| 1,1-dichloroethane | 0.02 | 15 | 7 | 900 |
| 1,2-dichloroethane | 0.02 | 6.4 | 7 | 400 |
| 1,1-dichloroethene | 0.1 | 0.3 | 0.01 | 10 |
| 1,2-dichloroethene (sum) | - | 1 | 0.01 | 20 |
| Dichloropropanes (sum) | - | 2 | 0.8 | 80 |
| Trichloromethane (chloroform) | 0.02 | 5.6 | 6 | 400 |
| 1,1,1-trichloroethane | 0.07 | 15 | 0.01 | 300 |
| 1,1,2-trichloroethane | 0.4 | 10 | 0.01 | 130 |
| Trichloroethene (Tri) | 0.1 | 2.5 | 24 | 500 |
| Tetrachloromethane (Tetra) | 0.4 | 0.7 | 0.01 | 10 |
| Tetrachloroethene (Per) | 0.002 | 8.8 | 0.01 | 40 |
| *Chlorobenzenes* | | | | |
| Monochlorobenzene | - | 15 | 7 | 180 |
| Dichlorobenzenes (sum) | - | 19 | 3 | 50 |

| Parameters | Soil (mg/kg dry matter) | | Groundwater (µg/l) | |
|---|---|---|---|---|
| | Target value* | Intervention value | Target value | Intervention value |
| Trichlorobenzenes (sum) | - | 11 | 0.01 | 10 |
| Tetrachlorobenzenes (sum) | - | 2.2 | 0.01 | 2.5 |
| Pentachlorobenzene | - | 6.7 | 0.003 | 1 |
| Hexachlorobenzene | - | 2.0 | 0.00009 | 0.5 |
| *Chlorophenols* | | | | |
| Monochlorophenols (sum) | - | 5.4 | 0.3 | 100 |
| Dichlorophenols (sum) | - | 22 | 0.2 | 30 |
| Trichlorophenols (sum) | - | 22 | 0.03 | 10 |
| Tetrachlorphenols (sum) | - | 21 | 0.01 | 10 |
| Pentachlorophenol | - | 12 | 0.04 | 3 |
| Source: Soil Remediation Circular 2013, (*Target values for soil refer to 2000 version as they are not present in the 2013). | | | | |

## 10.2 Scoping

The scope of the assessment has been defined in accordance with the nature and scale of the Project and the sensitivity of the receiving environment. The assessment focuses on identifying baseline physical conditions and evaluating potential risks associated with site preparation, construction, and operation, including soil disturbance, erosion, accidental spills and leaks, and potential impacts on shallow groundwater resources.

A comprehensive review of available hydrogeological and geotechnical information was undertaken, including published maps and previous investigation reports. This desk-based review was supplemented by multiple site walkover surveys to verify ground conditions, identify surface water and drainage features, observe evidence of groundwater abstraction, and assess land use characteristics across the Project site and surrounding area.

In addition to qualitative impact assessment, a targeted field investigation programme was undertaken to support a more robust conceptual understanding of subsurface conditions. This included the collection and laboratory analysis of representative soil samples from within the Project footprint and groundwater samples obtained from existing groundwater abstraction source located near the Project site. The sampling programme was designed to provide an indication of baseline soil and groundwater quality and to identify any pre-existing contamination or sensitivities relevant to the proposed development.

The findings of the desk study, site reconnaissance and sampling campaign were integrated to develop a conceptual site model (CSM). The CSM characterises the local stratigraphy, aquifer properties, groundwater levels, recharge and discharge mechanisms, and likely groundwater flow pathways. The CSM also identifies the principal source–pathway–receptor (SPR) linkages associated with the Project, providing the framework for identifying potential impact mechanisms, assessing risks to groundwater and connected receptors, and developing appropriate mitigation measures during both the construction and operational phases.

The assessment considers both direct and indirect impacts, including:

- Physical disturbance and compaction of soils during earthworks;

- Increased erosion potential and sediment mobilisation;
- Risks associated with storage and handling of fuels, oils and hazardous materials;
- Potential leakage from fuel infrastructure and other operational facilities; and
- Changes to groundwater recharge patterns resulting from increased areas of impermeable surface.

The study area extends beyond the immediate Project footprint where relevant, particularly in relation to groundwater flow direction and the location of nearby receptors, including agricultural land and groundwater abstraction points.

## 10.3 Sensitive Receptors

Interfaces between planned project activities and relevant valued receptors represent potential project impacts. The following table provides a descriptive list of receptors pertaining to the existing geology, soils and groundwater within the Project's area.

**Table 10-4 Soil and Groundwater Sensitive Receptors**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Soil quality | **Medium** | The quality of the soil within the Project site is typical of the soil characteristics/structure found in the neighbouring farms. Even though soil is not of high importance in terms of rarity on a local scale, considering the arable land and agricultural productivity, it is therefore considered crucial for land-based livelihoods for neighbouring community. |
| Groundwater quality and level | **High** | The static water levels at the site are shallow (1-2 meters) with potential for contamination from Project activities above ground. Moreover, water is scarce and a natural resource of high value in Uzbekistan. Groundwater is used for drinking and other domestic purposes. |
| Soil integrity | **Low** | The soil currently exhibits good integrity, with no signs of sheet, rill and gulley erosion, and the absence of steep slopes, excavation and earth-moving activities. |
| Site workers (direct exposure) | **Medium** | Site workers are vulnerable to health risks from direct exposure of soils with pollutants. However, it is expected that workers will be trained to ensure risk awareness and adequate use of PPEs. |
| Other soils (from soil contamination) | **Medium** | Offsite shipment of soil samples will be subject to assessment to ensure risk avoidance and disposal locations will be selected accordingly considering risks of exposure. Medium sensitivity has been assigned as a conservative approach. |
| Neighbouring land users | **High** | A considerable number of people in neighbouring communities rely on the farmlands as their primary source of income and livelihood. The farmers will be particularly susceptible to potential changes in groundwater characteristics. |

## 10.4 Observations and Baseline Conditions

### 10.4.1 Topography

The Project site and its surrounding area mostly consist of arable land and residential communities. The site itself features a gentle slope from the northeast to the southwest, with elevations ranging from approximately 370 meters above sea level (ASL) in the northeast to about 350 meters ASL in the southwest. This topographical variation is depicted in Figure 10-1. The site is low-lying with reference to the water level of the nearby Chirchiq River and irrigation systems. A reason for this is to ensure supply of gravity fed irrigation to the agricultural fields in the region. As, such, the groundwater levels at site are expected to be shallow which was also confirmed during the geotechnical studies conducted which are discussed later in this section of the report.

### 10.4.2 Geology

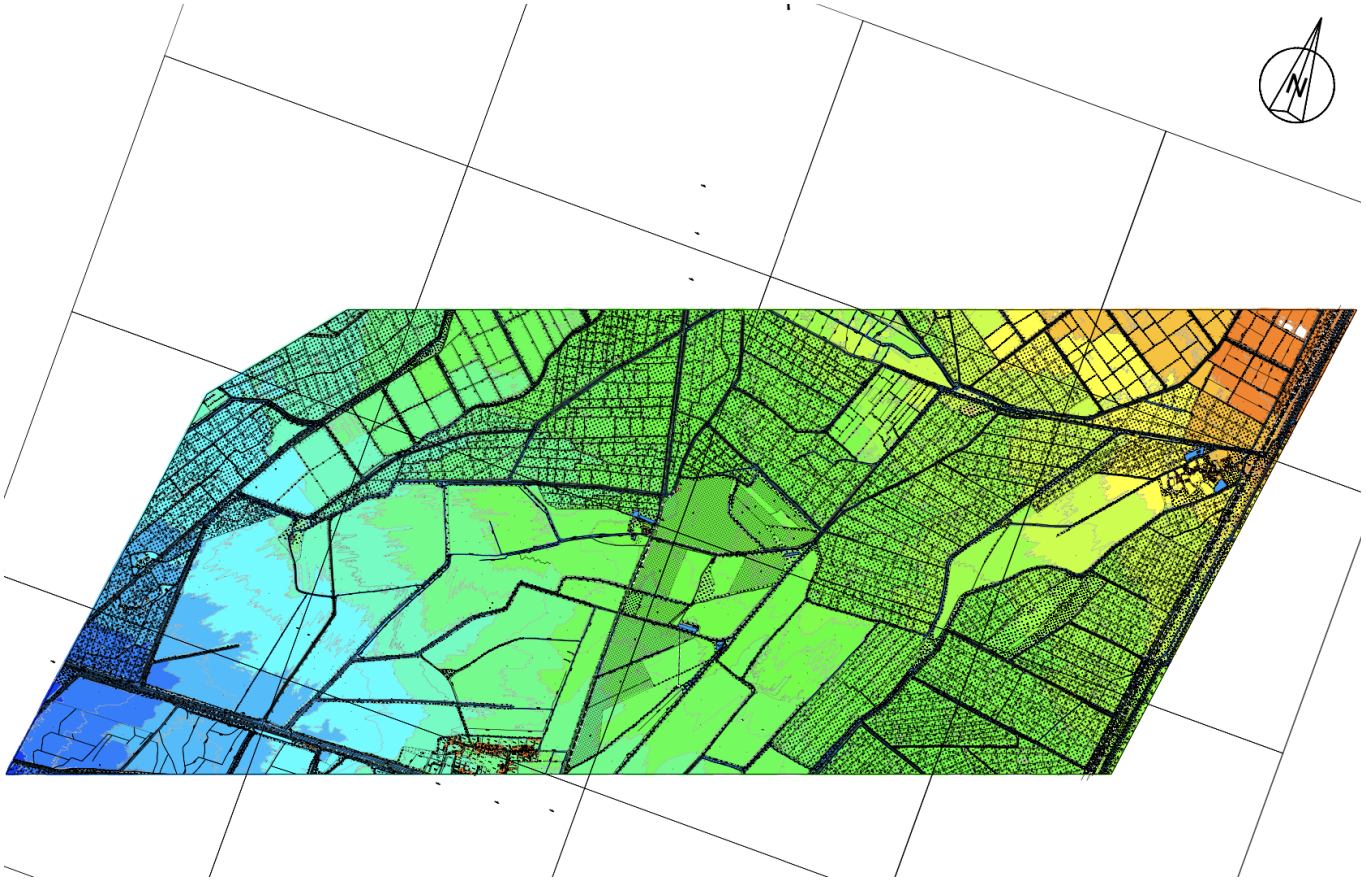
The Project site is located within the Chirchiq river valley and is underlain by a significant thickness of alluvium and river terrace gravels. In the geological structure of the Project area, the Quaternary system deposits are of particular interest. Quaternary deposits are represented by three genetic types: alluvium, proluvium, and deluvium. The Chirchik alluvium consists of gravel and conglomerates, forming a series of terraces. The composition of the gravel is uniform everywhere, consisting of well-rounded pebbles interspersed with grey quartz sand. Proluvial deposits are represented by loess and loess-like rocks, which overlay the alluvial gravels and conglomerates of ancient terraces. The geological map of Tashkent province indicating the Project site location is shown in Figure 10-2.

A geotechnical investigation was conducted by O'ZGASHKLITI LLC in 2024, involving the drilling of twenty-one (21) boreholes and four (4) trial pits, along with other ground investigation studies. See Appendix 6 for further details. The study revealed three primary geological layers at the site as follows:

- The first layer, ranging from 0.0 to 2.9 meters thick, consists of light brown, low plasticity silty clay with hard density.
- The second layer is composed of fine-grained yellowish sand, which is wet to water-saturated and has hard density.
- The third geological layer, extending throughout the borehole depth to a maximum of 50 meters, consists of sandy gravel with large boulders and cobbles.

With reference to the above referenced geotechnical study, the geological setting of the study area is characterised by clayey and coarse-grained deposits of the Syrdarya complex (QIVsd). Coarse-grained soils consist predominantly of well-rounded gravels composed mainly of granitic material, with occasional limestone and marble fragments. Gravel clasts typically range from 10 to 20 cm in size, with rare occurrences up to 100 cm, and are interspersed with grey quartz sand. The gravels occur in shades of grey and pink and locally show compaction, limestone cementation, and isolated conglomerate lenses. The thickness of gravel deposits forming the upper terrace and floodplain generally ranges between 5 and 10 m.

Clayey soils comprise loess-like clays with interlayers of loam, light brown in colour and exhibiting a hard to plastic consistency. In some areas, the gravel deposits are water-saturated, reflecting the influence of shallow groundwater conditions. The presence of laterally extensive, water-saturated gravel deposits indicates moderate to high groundwater permeability and suggests that groundwater flow is likely to be active, occurring predominantly within the coarse-grained terrace and floodplain deposits. Clayey interlayers may locally restrict vertical flow but are not expected to significantly impede horizontal groundwater movement.



Elevations Table

| Number | Minimum Elevation | Maximum Elevation | Color |
|---|---|---|---|
| 1 | -12.000 | -10.000 | |
| 2 | 340.000 | 342.000 | |
| 3 | 342.000 | 344.000 | |
| 4 | 344.000 | 346.000 | |
| 5 | 346.000 | 348.000 | |
| 6 | 348.000 | 350.000 | |
| 7 | 350.000 | 352.000 | |
| 8 | 352.000 | 354.000 | |
| 9 | 354.000 | 356.000 | |
| 10 | 356.000 | 358.000 | |
| 11 | 358.000 | 360.000 | |
| 12 | 360.000 | 362.000 | |
| 13 | 362.000 | 364.000 | |
| 14 | 364.000 | 366.000 | |
| 15 | 366.000 | 368.000 | |
| 16 | 368.000 | 370.000 | |
| 17 | 370.000 | 372.000 | |
| 18 | 372.000 | 374.000 | |

**Figure 10-1 Topographical Map of Project Site**

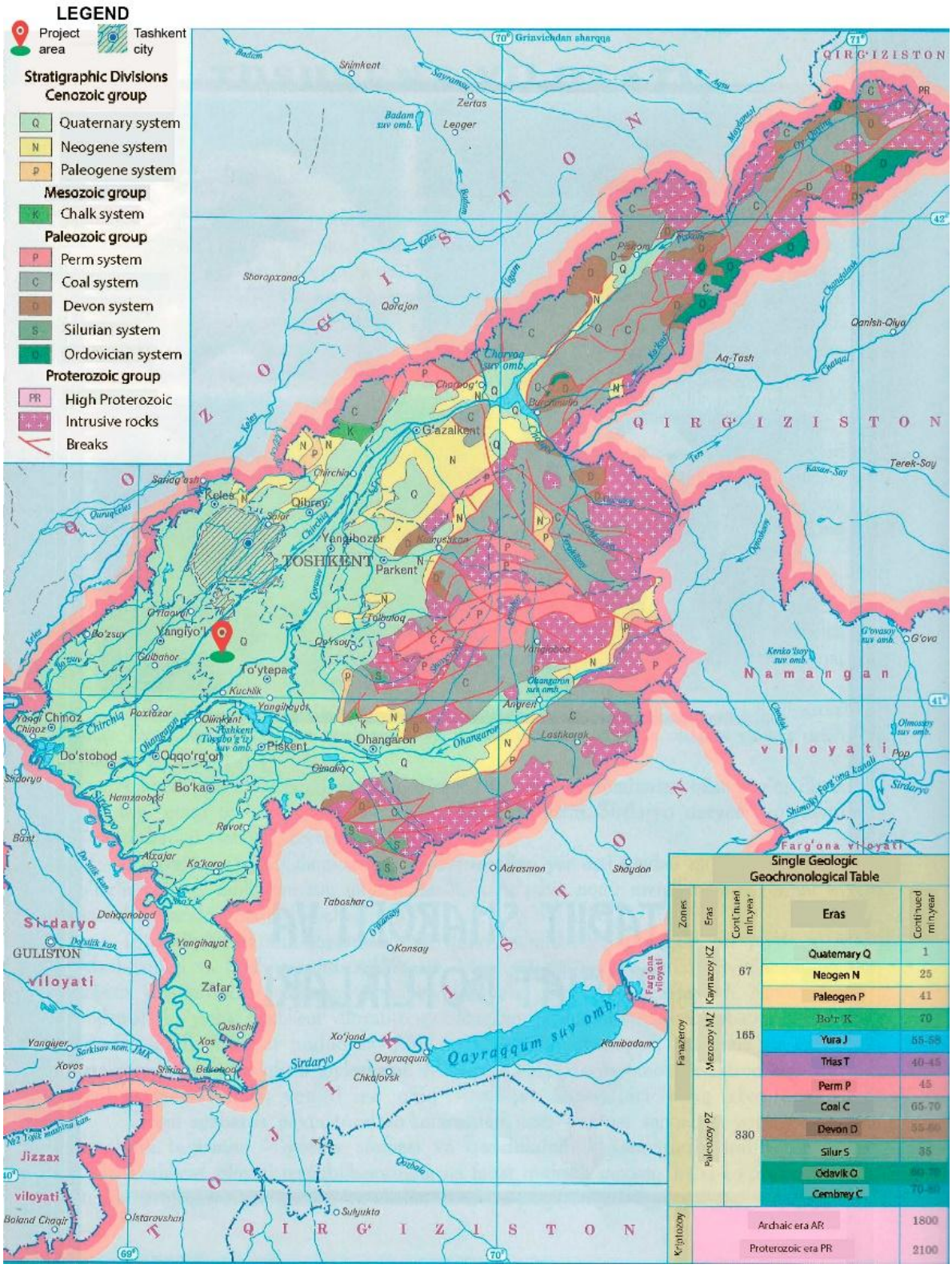



**Figure 10-2 Geological Map of Tashkent Province**

### 10.4.3 Hydrogeologic Conceptualisation

#### 10.4.3.1 Introduction

A hydrogeological conceptualisation exercise was undertaken to develop an integrated understanding of subsurface conditions at and around the Project site based on available information. The objective of this exercise was to characterise the geological framework, aquifer properties, groundwater levels and flow regime, recharge mechanisms, and hydraulic connectivity with surface water features.

The CSM has been informed by a review of available geological and geotechnical data, groundwater level monitoring, laboratory analysis of soil and groundwater samples, site walkovers, and interpretation of regional hydrogeological information. The CSM provides the technical basis for the qualitative and semi-quantitative assessment of potential impacts on soil and groundwater resources during construction and operation of the Project. Detailed Hydrogeologic Conceptualisation Technical Note is included in Appendix 6.

While the conceptual hydrogeological model provides a reasonable understanding of baseline conditions, certain uncertainties remain which are:

- Absence of site-specific hydraulic testing data (e.g., pumping tests or slug tests);
- No confirmed dewatering design parameters for construction excavations;
- Limited temporal groundwater monitoring (four monitoring rounds only);
- Lack of surveyed elevations for drainage infrastructure and river stage data;
- Incomplete inventory of nearby groundwater abstraction points (e.g., private or irrigation wells).

All findings in this review should therefore be regarded as indicative for the purpose of impact assessment (not design) and are subject to refinement as additional information becomes available.

These data gaps introduce uncertainty into quantitative predictions of groundwater behaviour; however, they do not materially alter the overall conceptual understanding of a shallow, highly permeable, unconfined alluvial aquifer hydraulically connected to the regional river and irrigation network.

#### 10.4.3.2 Overview of Hydrogeologic Setting

The Project area is located on the cultivated alluvial floodplain of the Chirchik River, approximately 2 km southeast of the present river channel at its closest point. Rice cultivation is understood to be widespread in the area, with fields typically seasonally flooded during the growing period (generally April–October), implying sustained water application across large areas.

Topographic relief across the site is limited, with no significant local features expected to materially influence groundwater flow patterns. The entire site area is underlain by unconsolidated Quaternary alluvial deposits comprising silts, sands, gravels and cobbles. No competent bedrock has been encountered within the investigated depth range.

These deposits form a shallow, unconfined aquifer system characterised by high permeability. The laterally extensive gravel unit, identified as Engineering–Geological Element 3 (EGE 3), represents the principal aquifer and extends to an approximate depth of 50 m. This unit forms the dominant groundwater-bearing horizon beneath the site.

Topography across the site is generally flat, ranging between approximately 328 m and 396 m above sea level, and the land is intensively cultivated. A dense network of irrigation and

drainage channels traverses the site and interacts directly with shallow groundwater conditions.

#### 10.4.3.3 Climatic and Hydrological Context

The region experiences a sharply continental climate with hot, dry summers and moderate, highly seasonal rainfall of 400–600 mm/year, concentrated in late winter and spring. Evapotranspiration is expected to be high, reducing the proportion of rainfall contributing to groundwater recharge.

The Chirchik River, a major river system in the region, lies hydraulically connected to the Project aquifer, with the site situated on its alluvial plain and intersected by a network of irrigation and drainage channels typically 3–5 m wide and 1.5–2 m deep. These channels are mostly unlined and exhibit substantial seepage losses to the aquifer.

Note: no climate change predictions or amendments have been applied in this review.

#### 10.4.3.4 Geological and Hydrostratigraphic Conditions

The subsurface stratigraphy comprises three principal alluvial units:

- EGE 1 – Near-surface silts and clays
- EGE 2 – Intermediate sandy deposits
- EGE 3 – Laterally extensive gravel layer (principal aquifer unit)

EGE 3 (see Figure 10-3) consists predominantly of well-graded to poorly graded gravels with sand, with minimal fine content (approximately 83% gravel, 15% sand and 1.5% fines). The unit exhibits extremely high permeability and limited clay content, supporting rapid groundwater movement. An example of soil boring recovered during the geotechnical study is shown in Figure 10-4.

Available cross-sections indicate that the gravel unit is relatively homogeneous and laterally continuous across the Project area. The water table intersects this unit, and irrigation channels commonly extend down to or near the top of the gravel horizon, reinforcing hydraulic connectivity between surface water features and groundwater.

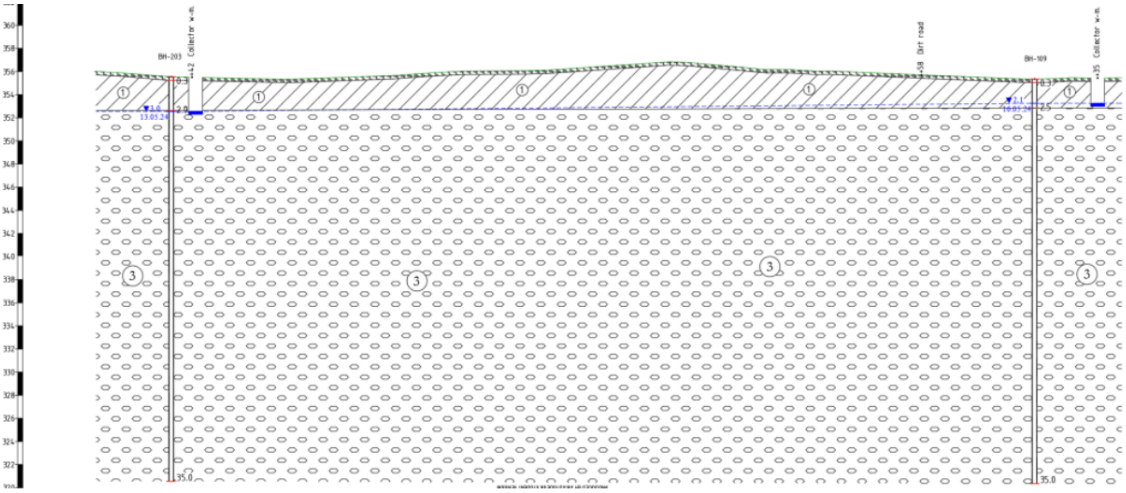


**Figure 10-3 Monitoring Well and EGE-3 Profile (Source: O'zgashkliti, 2024)**

**Figure 10-4 Borehole Soil Samples – Upper 5m Silt, 25m Gravel (Source: Ozgashkliti, 2024)**

### 10.4.3.5 Groundwater Levels and Flow Regime

Based on the findings of the preliminary geotechnical investigation described in the earlier section, groundwater was encountered in most boreholes drilled across the project site. Records from installed monitoring wells indicate that the groundwater table is generally shallow, with measured depths ranging from approximately 1.2 m to 2.6 m below ground level (bgl) and an average depth of around 1.8 m bgl.

Spatial variation in groundwater levels across the site is largely attributable to differences in borehole ground elevations, reflecting the local topographic relief. Such variations are considered typical for shallow groundwater systems and may also be influenced by site-specific hydrogeological conditions, including soil permeability, proximity to surface water features, and seasonal recharge patterns. Groundwater levels are therefore expected to fluctuate over time in response to rainfall, evapotranspiration, and seasonal hydrological conditions.

The hydraulic gradient across the site is relatively low (approximately 0.0034), with groundwater flow interpreted to be generally towards the southwest, in the direction of the Chirchik River as indicated in Figure 10-5.

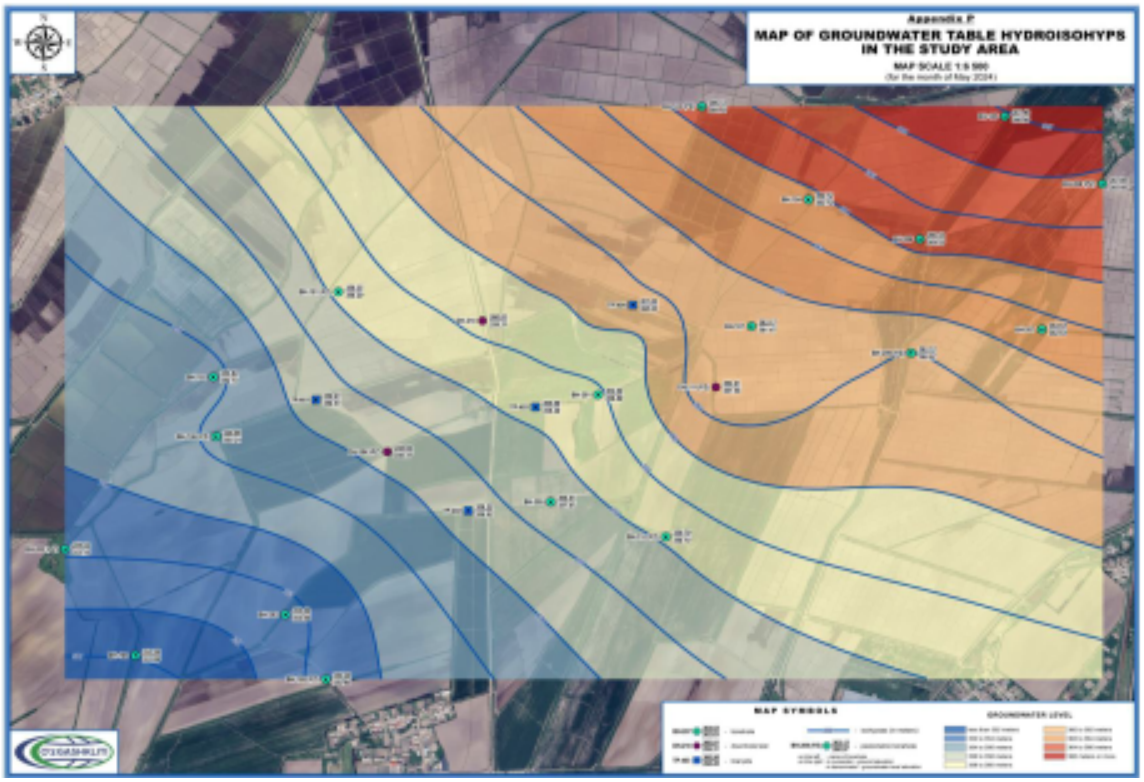



**Figure 10-5 Groundwater Table Contour (Source: O'zgaskliti, 2024)**

### 10.4.3.6 Aquifer Hydraulic Properties

The subsurface beneath the Project site is dominated by coarse gravel and sand deposits typical of unconsolidated Quaternary alluvial sediments. These materials are expected to exhibit very high intergranular hydraulic conductivity (K) and moderate to high porosity, consistent with published literature values for gravel aquifers. Reference sources indicate hydraulic conductivity for gravels typically ranges between approximately $10^{-3}$ and 1 m/s, with porosity generally between 25% and 40%, depending on the proportion of fine material present. Where coarse gravels dominate and fines are limited, permeability is expected to be at the upper end of this range.

Such hydrogeological conditions indicate a highly transmissive unconfined aquifer capable of yielding significant groundwater volumes and responding rapidly to excavation, dewatering and recharge inputs.

An assessment of permeability was undertaken using particle size distribution (PSD) data from 211 soil samples collected during borehole investigations. Empirical estimation methods were applied to assess indicative hydraulic conductivity values. While these methods are not fully validated for coarse gravels and tend to produce unrealistically high absolute values due to methodological constraints, the results consistently indicate very high permeability within the principal gravel unit. Estimated values were commonly in the order of $10^{-1}$ to $10^{0}$ m/s, reinforcing the interpretation of a highly permeable aquifer.

Near-surface materials (0–2 m) show more variable behaviour, with permeability either similar to the underlying gravels or significantly lower where finer-grained topsoil horizons are present.

Overall, despite methodological limitations in deriving precise quantitative values, all lines of evidence confirm that the dominant gravel aquifer beneath the site is extremely permeable and hydraulically responsive. This has important implications for groundwater management

during construction (e.g., dewatering requirements) and for assessing potential contaminant migration pathways.

Typical porosity values for comparable alluvial gravel deposits range between 25% and 40%, with some site-specific samples suggesting values approaching 50%. These properties indicate a highly transmissive unconfined aquifer capable of rapid groundwater movement and limited natural attenuation in the event of contaminant release.

Surface infiltration testing indicates moderate infiltration rates (approximately 0.00096–0.00110 cm/s), reflecting the presence of relatively finer-grained near-surface soils overlying the coarse gravel unit. Consequently, while vertical infiltration at surface may be somewhat moderated by topsoil conditions, groundwater flow within the underlying gravel aquifer is expected to be rapid once recharge reaches the saturated zone.

A detailed technical evaluation of hydraulic conductivity estimation methods and supporting PSD analysis is provided in the Appendix 6.

#### 10.4.3.7 Recharge Mechanisms and Surface Water Interaction

Groundwater recharge within the Project area is primarily driven by anthropogenic and seasonal surface water inputs rather than direct rainfall. Key recharge mechanisms include:

- Seepage from unlined irrigation canals;
- Infiltration from seasonally flooded rice paddies;
- Snowmelt contributions during late winter and spring.

Direct rainfall recharge is considered limited due to high evapotranspiration losses.

The irrigation network appears to function predominantly as a recharge source rather than an effective drainage mechanism. This contributes to persistently shallow groundwater conditions and seasonal water table rise during irrigation periods.

#### 10.4.3.8 Conceptual Site Model Summary

The Project is located within a shallow, highly permeable unconfined alluvial aquifer that is hydraulically connected to the surrounding irrigation network and the Chirchiq River. Groundwater recharge is primarily derived from seepage from irrigation canals and irrigated agricultural land, while groundwater flow generally follows the regional hydraulic gradient towards the Chirchiq River. Due to the high permeability of the gravel aquifer and shallow groundwater table, construction activities requiring dewatering have the greatest potential to influence groundwater levels, groundwater flow, irrigation systems and connected surface waters. Other potential impact mechanisms include diversion of irrigation channels, excavation below the groundwater table, and accidental releases of contaminants during construction and operation. These source–pathway–receptor relationships form the basis of the hydrogeological impact assessment and the identification of mitigation measures.

The following table presents the source–pathway–receptor linkages that underpin the CSM and form the basis of the hydrogeological impact assessment.

**Table 10-5 Conceptual Site Model Source-Pathway-Receptor Linkages**

| Source/Activity | Pathway | Potential Receptor |
|---|---|---|
| Construction dewatering associated with deep excavations | Drawdown within the highly permeable shallow alluvial aquifer (EGE-3) | Shallow groundwater resource; nearby irrigation canals; drainage network; agricultural land; groundwater users; Chirchiq River |
| Diversion of irrigation and drainage channels around the airport | Modification of recharge to the shallow aquifer and changes in groundwater/surface water interaction | Irrigation network; shallow aquifer; agricultural land; downstream water users |
| Accidental release of fuels, oils and chemicals during construction | Infiltration through permeable unsaturated soils followed by migration within the highly permeable gravel aquifer | Groundwater quality; irrigation canals; drainage network; Chirchiq River; groundwater users |
| Concrete works, piling and foundation construction | Direct interaction with saturated soils and groundwater; creation of preferential migration pathways | Shallow aquifer |
| Operational fuel storage and maintenance areas | Leakage through soil profile to groundwater via permeable alluvial deposits | Groundwater quality; groundwater users; Chirchiq River |

### 10.4.4 Baseline Surveys

Phase I type site walkover surveys were conducted during multiple site visits undertaken as part of the ESIA studies to identify any visible signs of soil contamination, waste disposal, or other potential sources of land contamination within the project area and its immediate surroundings. These surveys involved visual inspections carried out over different stages of the ESIA, focusing on evidence such as soil staining, unusual odours, stressed vegetation, surface debris, informal waste dumps, disused infrastructure, and indications of past or ongoing activities that could present a contamination risk. Particular attention was paid to low-lying areas, drainage pathways, and locations associated with historical or current land use. Overall, no visible evidence of uncontrolled waste disposal, or other notable sources of land contamination was identified during the site walkover surveys.

#### 10.4.4.1 Soil Sampling and Analyses

Soil samples (top soil) were collected from eight locations (1S to 8S) across the Project site and analysed for selected heavy metals and general soil chemistry parameters. The results were compared against applicable National Maximum Permissible Concentrations (MPCs) and the Dutch Soil Quality Standards (Target and Intervention Values), which are commonly used as international reference criteria for screening-level assessment.

The site has been used for agricultural cultivation over a prolonged period. As such, historical and ongoing use of fertilisers, pesticides, soil conditioners and irrigation return flows may have influenced baseline soil chemistry. The laboratory results are shown in Table 10-3. Soil sampling locations are indicated in Figure 10-6.

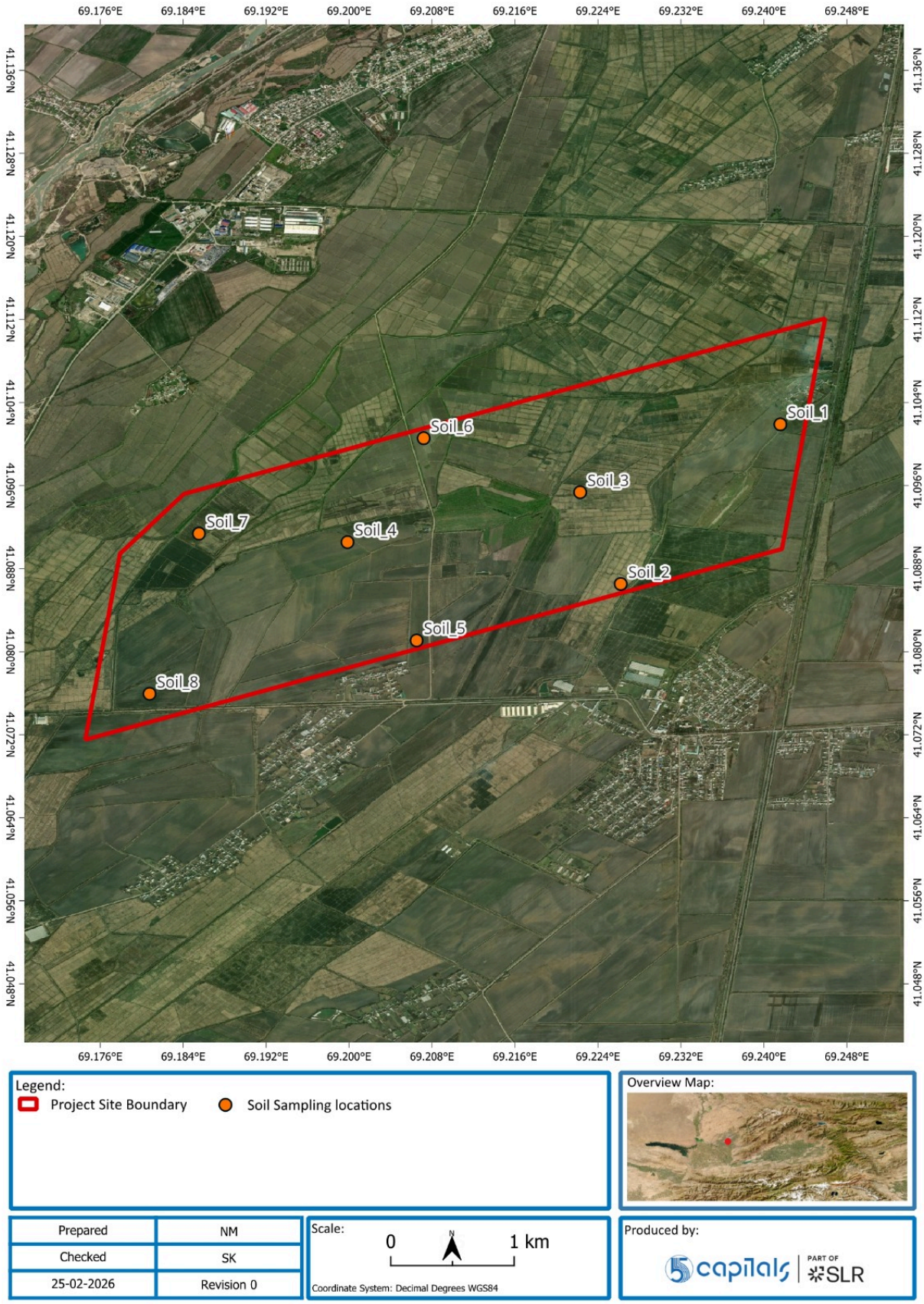



**Figure 10-6 Soil Sampling Locations**

**Heavy Metals**

Copper (Cu) concentrations range from 36.1 to 55.5 mg/kg. All samples exceed the National MPC (3 mg/kg). Relative to Dutch standards, most values are at or moderately above the Dutch Target Value (36 mg/kg), with the highest value recorded at 55.5 mg/kg. However, all concentrations remain well below the Dutch Intervention Value (190 mg/kg). Elevated copper in agricultural soils is commonly associated with long-term application of certain fungicides and fertilisers, and the observed concentrations are consistent with diffuse agricultural inputs rather than localised contamination.

Zinc (Zn) concentrations range between 116 and 146 mg/kg. All samples exceed the National MPC (23 mg/kg). Compared to Dutch criteria, most values are close to or slightly above the Target Value (140 mg/kg), while remaining significantly below the Intervention Value (720 mg/kg). Zinc enrichment in cultivated soils is often linked to fertiliser use and manure application and does not indicate significant contamination at the recorded levels.

Lead (Pb) concentrations range from 60.4 to 78.2 mg/kg. These exceed the National MPC (32 mg/kg) at all locations. However, all measured concentrations remain below the Dutch Target Value (85 mg/kg) and substantially below the Intervention Value (530 mg/kg). The results are consistent with background levels in alluvial agricultural soils and do not indicate site-specific contamination.

Cadmium (Cd) concentrations range from 1.728 to 1.989 mg/kg. While no National MPC is provided for comparison, all values exceed the Dutch Target Value (0.8 mg/kg) but are well below the Dutch Intervention Value (13 mg/kg). Cadmium accumulation in agricultural soils can be associated with phosphate fertilisers. The relatively uniform distribution across sampling locations suggests diffuse agricultural influence rather than point-source contamination.

Overall, heavy metal concentrations exceed the relatively stringent National MPC screening thresholds but remain below internationally recognised Dutch Intervention Values. The spatial consistency of results across the site indicates that concentrations likely reflect long-term agricultural inputs and natural alluvial background conditions rather than discrete contamination hotspots.

**Nutrients and General Soil Chemistry**

Nitrate nitrogen concentrations (4.62–14.3 mg/kg) are well below the National MPC (130 mg/kg), indicating no evidence of nitrate contamination despite prolonged agricultural use.

Phosphorus concentrations vary widely (2–149 mg/kg), which is typical of cultivated soils subject to fertiliser application. This variability is consistent with historical agricultural practices.

Sulfates range from 321 to 1,179 mg/kg and exceed the National MPC (160 mg/kg) at all locations. Elevated sulfate concentrations may reflect both natural soil conditions in alluvial floodplain environments and irrigation-related accumulation over time.

Water-soluble fluorides (1.5–4.5 mg/kg) remain below the National MPC (10 mg/kg).

Soil pH values (7.75–8.1) indicate slightly alkaline conditions, typical of irrigated agricultural soils in the region. Humus content (1.57–2.8%) is consistent with cultivated land.

**Overall Interpretation**

The analytical results indicate that while several parameters exceed National MPC thresholds, concentrations remain below Dutch Intervention Values and generally align with or moderately exceed Dutch Target Values. Given the long-standing agricultural use of the site, including probable application of fertilisers and agrochemicals, the observed elevations are consistent with diffuse agricultural enrichment and natural alluvial background conditions rather than significant contamination.

**Table 10-6 Analytical Results for Soil Samples Obtained from the Project Site**

| Component | Component content in soil samples | | | | | | | | National MPC, mg/kg | Dutch Standard | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1S | 2S | 3S | 4S | 5S | 6S | 7S | 8S | | Target value* | Intervention value |
| Copper (mg/kg) | 36.1 | 42 | 42.8 | 41.2 | 36.3 | 36.3 | 55.5 | 45.2 | 3 | 36 | 190 |
| Zinc (mg/kg) | 138 | 142 | 135 | 137 | 125 | 116 | 146 | 141 | 23 | 140 | 720 |
| Lead (mg/kg) | 70.8 | 78.2 | 70.3 | 60.9 | 60.4 | 69.7 | 75.6 | 72.8 | 32 | 85 | 530 |
| Cadmium (mg/kg) | 1.920 | 1.989 | 1.970 | 1.851 | 1.808 | 1.923 | 1.909 | 1.728 | - | 0.8 | 13 |
| Nitrate nitrogen (mg/kg) | 14.3 | 12.3 | 9.76 | 10.3 | 11.3 | 4.62 | 13.3 | 11.3 | 130 | - | - |
| Mobile phosphorus (mg/kg) | 110 | 36 | 5 | 8 | 149 | 2 | 6 | 15 | - | - | - |
| Sulfates (mg/kg) | 321 | 536 | 357 | 964 | 500 | 429 | 1107 | 1179 | 160 | - | - |
| Water-soluble fluorides (mg/kg) | 1.5 | 2 | 3.1 | 3.1 | 4.1 | 4.3 | 4.5 | 4.5 | 10 | - | - |
| pH | 7.75 | 7.9 | 8 | 8.1 | 8.1 | 8.1 | 8 | 8 | - | - | - |
| Humus, % | 1.78 | 2.37 | 2.29 | 1.57 | 2.08 | 2.8 | 2.21 | 2.25 | - | - | - |

Note: Highlighted in pink as exceedances against both the MPC and DTV.
Highlighted in blue are exceedances only against MPC

#### 10.4.4.2 Groundwater Sampling and Analyses

The ESIA surveys did not include the drilling of new boreholes or the installation of dedicated groundwater monitoring wells. Instead, groundwater quality sampling was undertaken using existing groundwater pump pipes located within nearby communities, where access was readily available. These wells are understood to abstract groundwater from the same shallow aquifer system present beneath the Project area and are therefore considered suitable for providing a representative indication of baseline groundwater quality conditions in the vicinity of the site.

The use of existing abstraction points is a common and accepted practice at the ESIA stage and provides sufficient information to characterise groundwater quality for baseline assessment purposes, while minimising additional land disturbance. While these sampling locations provide a reasonable indication of baseline groundwater quality, the results should be considered representative rather than definitive, and additional site-specific monitoring may be undertaken during subsequent project phases if required.

Groundwater samples were collected from seven wells (Well-1 to Well-7), as indicated in Figure 10-7, located within and close to the Project site and analysed for general physico-chemical parameters and selected metals. The results were compared against the applicable National Maximum Permissible Concentrations (MPC) under SanR&N No. 0083-24 and the Dutch Groundwater Standards (Target and Intervention Values), which provide internationally recognised screening benchmarks.

**General Water Quality Parameters**

Measured pH values range from 7.00 to 7.16, falling comfortably within the national permissible range of 6.5 to 8.5. Groundwater is therefore neutral to slightly alkaline, consistent with regional alluvial aquifer conditions.

Nitrate concentrations range from 1.55 to 5.09 mg/l, significantly below the National MPC of 45 mg/l. These values indicate no evidence of nitrate contamination and suggest limited impact from agricultural fertiliser leaching at the sampled locations.

Phosphate concentrations range between 0.003 and 0.635 mg/l, remaining below the National MPC of 1 mg/l in all wells. Although Well-5 shows a comparatively elevated value (0.635 mg/l), this remains within permissible limits.

Organic load indicators, including $BOD_5$ (0.94–3.23 mg O/l) and COD (7.74–15.3 mg O/l), are well below their respective National MPC values (6 mg O/l for $BOD_5$ and 30 mg O/l for COD), indicating good overall groundwater quality with no evidence of significant organic contamination.

Electrical conductivity values range from 795 to 1,061 µS/cm, reflecting moderate mineralisation typical of shallow alluvial groundwater in irrigated agricultural settings.

**Heavy Metals**

Copper concentrations range from 2.78 to 5.15 µg/l. All measured values exceed the National MPC of 1 µg/l. However, concentrations remain well below the Dutch Target Value (15 µg/l) and significantly below the Dutch Intervention Value (75 µg/l). This indicates minor exceedance of the national screening threshold but no indication of significant contamination under international standards.

Zinc concentrations range from 8.69 to 24.5 µg/l. All samples exceed the National MPC of 5 µg/l. However, concentrations remain well below the Dutch Target Value (65 µg/l) and far below the Intervention Value (800 µg/l), indicating no material contamination concern.

Cadmium concentrations range from 2.61 to 3.17 µg/l. These values significantly exceed the very stringent National MPC of 0.001 µg/l and also exceed the Dutch Target Value of 0.4 µg/l. However, all measured concentrations remain below the Dutch Intervention Value of 6 µg/l. The uniformity of cadmium concentrations across all wells suggests a diffuse background presence, potentially associated with long-term agricultural inputs (e.g., phosphate fertilisers) or natural geochemical conditions rather than point-source contamination.

**Overall Interpretation**

The analytical results indicate that general groundwater quality parameters (pH, nitrates, phosphates, $BOD_5$ and COD) comply with national standards and do not suggest significant organic or nutrient contamination.

For heavy metals, copper and zinc exceed National MPC values but remain well below Dutch Target and Intervention thresholds. Cadmium exceeds both the National MPC and Dutch Target Value but remains below the Dutch Intervention Value. Given the agricultural history of the area and the consistency of results across sampling locations, the elevated metal concentrations are considered indicative of diffuse background conditions rather than localised contamination.

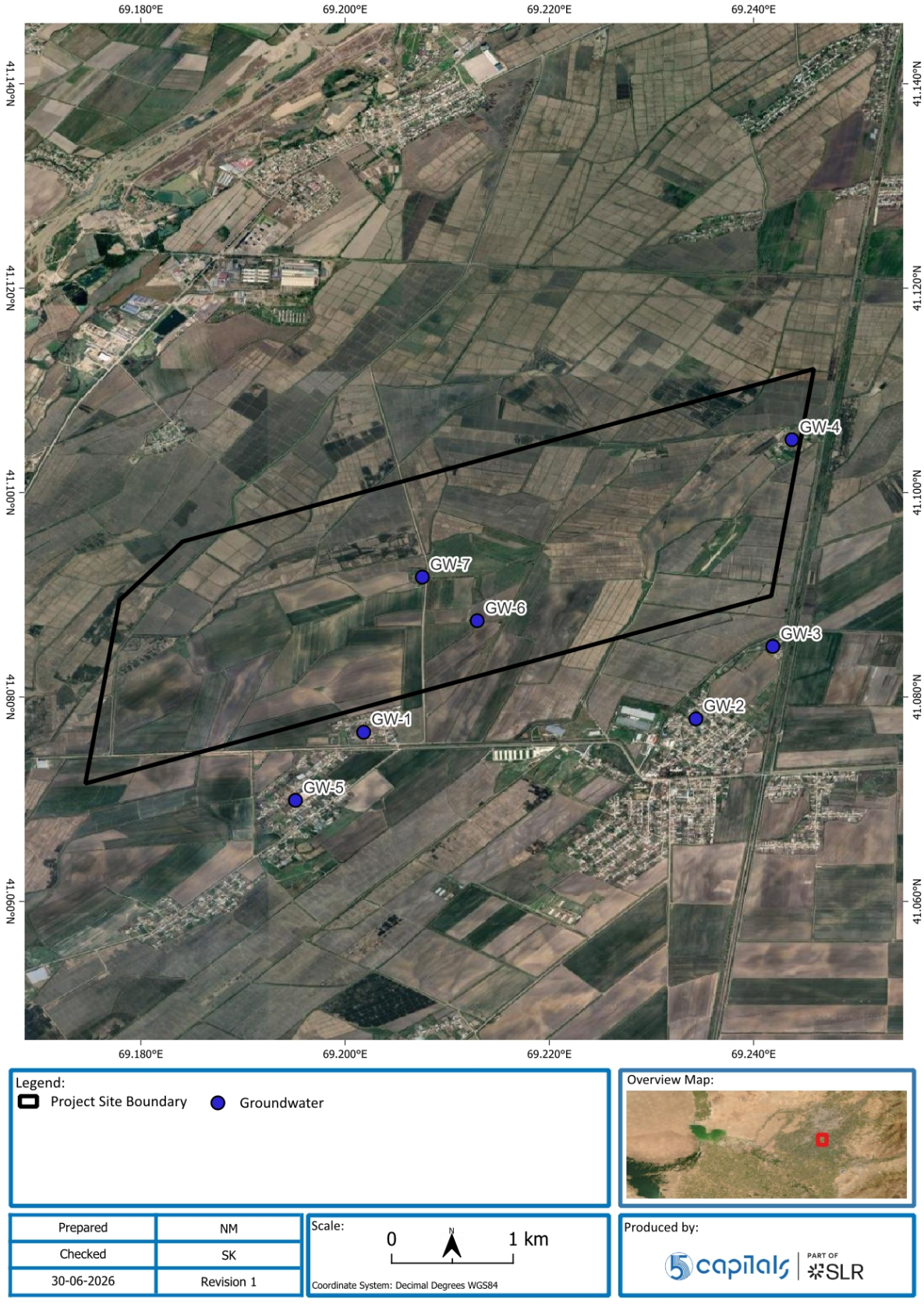



**Figure 10-7 Groundwater and Surface Water Sample Collection Locations**

**Table 10-7 Groundwater Analyses Results**

| Parameters | Sampling Location | | | | | | | MPC SanR&N No. 0083-24 | Dutch Standards (mg/l) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Well-1 | Well-2 | Well-3 | Well-4 | Well-5 | Well-6 | Well-7 | | Target Value | Intervention Value |
| pH | 7.04 | 7.01 | 7.11 | 7 | 7.12 | 7.14 | 7.16 | 6.5 – 8.5 | - | - |
| Nitrates, mg/l | 3.32 | 5.09 | 3.67 | 3.85 | 1.55 | 3.45 | 2.3 | 45 | - | - |
| Phosphates, mg/l | 0.037 | 0.003 | 0.015 | 0.061 | 0.635 | 0.021 | 0.092 | 1 | - | - |
| BOD5, mg O/l | 1.48 | 2.39 | 0.94 | 3.23 | 1.82 | 2.3 | 1.16 | 6 | - | - |
| COD, mg O/l | 13.2 | 8.99 | 11.2 | 11.8 | 12.6 | 7.74 | 15.3 | 30 | - | - |
| Copper, µg/l | 3.38 | 4.51 | 3.26 | 5.15 | 2.83 | 3.8 | 2.78 | 1 | 15 | 75 |
| Zinc, µg/l | 13.3 | 19 | 8.69 | 9.69 | 23.5 | 24.5 | 13.9 | 5 | 65 | 800 |
| Cadmium, µg/l | 3.02 | 3.11 | 3.05 | 3.16 | 2.7 | 2.61 | 3.17 | 0.001 | 0.4 | 6 |
| Electrical conductivity, µS/cm | 947 | 886 | 850 | 895 | 841 | 795 | 1061 | - | - | - |

Note: Highlighted in pink as exceedances against both the MPC and DTV.
Highlighted in blue are exceedances only against MPC

## 10.5 Potential Impacts, Mitigation, and Management

### 10.5.1 Construction Phase

Construction activities such as site preparation, civil works, electrical and mechanical works, materials delivery, chemical storage and waste management can lead to land degradation through geotechnical alterations and contamination of soil and groundwater.

Potential impacts on soils, geology and hydrogeology during construction are listed in Table 10-8.

**Table 10-8 Aspects and Impacts – Geology, Soil & Groundwater during Construction**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Receptors |
|---|---|---|---|
| Site preparation works | Rising groundwater and flooding from closing of existing irrigation canals and collectors | Project site and surrounding areas, likely to be a one-kilometer radial distance from centre of the Project site | Neighbouring communities and famers |
| Existing site soil condition | Historic build-up of pollutants from farming applications. | Areas for construction (exposure to pesticide build up in soils). Cross-contamination during site clearance and import of fill materials. | Site workers (direct exposure).<br><br>Other soils from cross contamination. |
| Construction of access roads, piping trenches and building foundation | Excavation and compaction | Land degradation within the Project footprint and immediate surrounding due to soil erosion, displacement of fertile topsoil, as well as soil compaction from roadworks and the presence of heavy machinery. | Site geology |
| Extraction (for construction purposes) and dewatering of groundwater (considering shallow groundwater table) | Management and possible discharge of water (if required and likely to contain elevated TSS/Turbidity) | Temporary local degradation to water quality (possibly the Chirchiq River) during the period of dewatering (until full settlement of sediments) | Site surfaces, river water and river water users. |
| Storage, handling and use of hazardous materials, chemicals, fuels, wastes and construction wastewater | Potential spillage/leak/wash off of contaminants | Direct impacts to soil (and potentially groundwater), or other water bodies (with potential for flow to drainage ditches and possibly nearby agriculture fields | Site soils and potentially groundwater. Impacts to drainage ditches, with spread to other areas and other water users. |

#### 10.5.1.1 Rising Groundwater and Flooding

As part of the site preparation works, a number of the existing wastewater collectors will be permanently closed and backfilled. These collectors are primarily used for the purpose of draining runoff from the surrounding farmlands and also helps to maintain groundwater levels which are shallow, typically just about 1m to 2m from the ground surface.

The closure of drainage collectors within the site may lead to localised increases in groundwater levels and temporary ponding. The ground beneath the Project area is characterised by highly permeable gravelly soils, which facilitate rapid groundwater flow and infiltration. While this permeability may help reduce the duration of surface ponding, it also means that shallow groundwater levels could rise over a wider area than anticipated, potentially affecting adjacent agricultural land and nearby communities. Farmers may experience impacts on crop productivity due to waterlogging, and localised flooding could affect access routes or low-lying areas.

The magnitude and extent of these potential impacts will depend on the detailed hydrogeological and geotechnical characteristics of the site, including the connectivity of gravel layers and the efficiency of the existing drainage system. Further assessment may be required following the completion of a detailed geotechnical and hydrogeological study, which will allow precise mapping of potential flooding zones and inform the design of mitigation measures. At this stage, the impacts are considered potential, direct, and reversible, and can be managed through appropriate drainage planning and temporary water management during construction.

Considering the presence of extensive network of collectors and channels in the surrounding area that will remain including the plan to construct additional collectors around the Project site, the magnitude of potential impacts from rise in groundwater and flooding in the immediate surroundings is assessed to be moderate.

#### 10.5.1.2 Excavation and Removal of Soils Including Cross Contamination

The Project involves excavation activities to establish foundations for key structures, including the Passenger Terminal Building. As outlined earlier in this report, a total area of approximately 13,000 $m^2$ of basement excavation will be required, with the deepest excavation going up to 8.5m bgl. Excavation may expose and mobilise buried soils, potentially containing contaminants.

The majority of excavated soil is expected to be reused onsite for backfilling and land raising to achieve the required ground levels. However, due to the planned import of large quantities of soil from external quarries for land raising, estimated to be approximately 12 million $m^3$ of fill material, there is a potential risk of cross-contamination. To mitigate this risk, representative soil samples will be collected and analysed from imported soil sources prior to delivery to ensure compliance with acceptable quality standards and to prevent potential health and environmental risks.

Site workers will be equipped with appropriate personal protective equipment (PPE) to minimise direct exposure to soil during excavation and handling. The EPC contractor will implement best practice stockpiling procedures, maintaining separation between topsoil and subsoil to preserve soil quality and facilitate proper backfilling that maintains natural stratification as much as possible. Considering the baseline soil conditions and the predominantly onsite reuse of excavated material, along with soil quality verification for imported fill, the overall magnitude of potential impacts related to soil contamination and worker exposure is assessed as minor.

#### 10.5.1.3 Soil Compaction and Erosion

The Project's construction phase will involve excavation, backfilling, and grading to facilitate the development of access roads, building foundations, and containment structures. These mass excavation activities may cause destabilisation of erosion-prone soils and loss of soil fertility due to displacement of topsoil. Additionally, heavy machinery operations and compaction activities can result in soil compaction.
Without mitigation, these impacts are assessed as negative, direct, and minor, as soil compaction, erosion, and topsoil displacement are expected to be localised within the Project footprint. The site terrain is generally flat, with no steep slopes. Implementation of the mitigation measures outlined in the following table is expected to reduce these impacts to negligible significance.

#### 10.5.1.4 Groundwater Extraction and Dewatering

Impact Mechanism

Several key airport infrastructure components (including the terminal building, Baggage Handling System (BHS) basement, sewage treatment plant, utility plants and power distribution centres) require excavation below the existing groundwater table. Anticipated excavation depths range from approximately 2 m to 6.7 m below groundwater level. The BHS basement alone has a footprint of approximately 13,152 m² and extends approximately 2 m below the water table.

As outlined earlier in the hydrogeologic conceptualisation section, the site is underlain by a laterally extensive, highly permeable gravel aquifer (EGE 3 unit), with hydraulic conductivity estimated in the order of $10^{-3}$ to $10^{-1}$ m/s. Groundwater levels are shallow and hydraulically connected to irrigation canals and the wider floodplain system, with a low but consistent regional gradient (~0.0034) towards the Chirchik River.

In this hydrogeological setting, dewatering will induce significant groundwater inflows to excavations and generate a measurable cone of depression extending laterally from the pumped areas. Given the high transmissivity of the aquifer, drawdown effects may propagate over relatively large distances compared to lower-permeability settings.

Dewatering Demand and Zone of Influence

Preliminary analytical calculations indicate that dewatering to approximately 3 m below the water table for a structure such as the BHS basement could result in inflows exceeding 1,200 m³/day. However, these simplified arithmetic calculations are likely to underestimate inflow due to assumptions regarding boundary conditions and aquifer homogeneity.

Preliminary steady-state numerical modelling suggests that inflows could potentially exceed 10,000 m³/day under conservative assumptions. While steady-state modelling tends to overestimate long-term pumping requirements (as it does not account for transient storage effects or gradual stabilisation of drawdown), the results confirm that pumping demand is likely to be substantial.

The radius of influence is expected to be relatively large due to the coarse gravel deposits and high hydraulic connectivity across the site. Diversion of the surface drainage network alone is unlikely to materially reduce groundwater inflows or de-saturate the gravels within the excavation footprint.

Further transient numerical modelling will be required at detailed design stage to refine estimates of pumping rates, drawdown extent and potential effects on sensitive receptors.

Lowering of the shallow water table during construction could temporarily reduce soil moisture availability in adjacent cultivated land. In areas reliant on shallow groundwater contribution or capillary rise, this may cause short-term crop stress or increased irrigation demand.

Given the temporary nature of construction dewatering (anticipated to be limited to the excavation period) and the continued availability of irrigation supply, this impact is assessed as Moderate magnitude.

Local domestic or irrigation wells in the surrounding area screened within the shallow gravel aquifer could experience temporary reductions in water level or yield within the radius of influence. The extent of this impact will depend on well depth, distance from excavation and pumping duration. In the absence of a confirmed receptor inventory, this represents a potentially sensitive impact pathway. The potential impacts associated with decrease in water level is assessed as Moderate magnitude.

#### 10.5.1.5 Soil and Groundwater Contamination

The construction phase of the Project involves the storage, handling, and use of chemicals, fuels, lubricants, and other hazardous substances. Exposed soil along the Project's access roads, off-loading and pick-up bays will be susceptible to contamination due to accidental spillage of transited products. Accidental spills, leaks, or improper handling of hazardous substances could lead to soil contamination.

In addition, the construction phase will involve activities that generate general and hazardous solid and liquid waste. Of particular concern is the management of hazardous waste generated during the construction phase and its handling. Although the hazardous stream of construction waste (e.g., used oil, concrete washout water, hydraulic fluids, lubricant oils, paints etc.) will represent a minor fraction of the overall output, the toxicity, persistence and bio-accumulative potential of its constituent chemicals calls for special attention with regards to management and disposal. Inadequate temporary storage and handling of such waste on construction sites prior to collection for treatment and/or disposal will result in the contamination of soil, groundwater and surface water, particularly during the wet season. Potential environmental impacts arising from the generation of hazardous wastes are covered in the 'Solid Waste and Wastewater Management' Section of this report.

Given the site's shallow groundwater table and the presence of highly permeable gravelly soils, contaminants could migrate rapidly through the subsurface, potentially reaching groundwater and spreading beyond the immediate spill location in case of major release of hazardous chemicals or fuel.

Potential impacts include:

- Direct contamination of soils within storage, refuelling, and chemical handling areas.
- Groundwater quality deterioration due to vertical migration through permeable gravel layers.
- Indirect impacts on nearby agricultural land or surface water bodies if contaminated groundwater discharges to surface channels or irrigation systems.
- Health and safety risks to site workers through dermal or inhalation exposure.

The magnitude of potential impacts is considered moderate due to the combination of shallow groundwater, high soil permeability, and the volume of chemicals and fuels anticipated on site. Impacts would be direct and potentially reversible with prompt containment and remediation; however, if not managed correctly, contamination could extend beyond the Project boundary.

### 10.5.2 Impacts Assessment Summary – Geology, Soil and Groundwater during Construction

A summary of potential impacts on geology, soil and groundwater during construction and their effects on identified receptors are presented in following table including suggested mitigation measures and residual impacts after implementation of mitigations measures.

**Table 10-9 Impact Assessment Summary – Geology, Soil and Groundwater during Construction**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Rising groundwater and flooding from closing of existing irrigation canals and collectors | Moderate | Neighbouring communities and farmers | High | Moderate | Minor |
| Cross contamination of soil and exposure risks during construction | Minor | Soil quality | Medium | Minor | Negligible |
| | | Site workers | Medium | Minor | Negligible |
| Land degradation due to soil erosion, displacement of fertile topsoil, as well as soil compaction from roadworks and the presence of heavy machinery. | Minor | Soil Integrity | Low | Minor | Negligible |
| Localised drop in groundwater level (drawdown) | Moderate | Surrounding land users, Groundwater level | High | Moderate | Minor |
| Contamination of soil and groundwater due to accidental spills, leakages, and uncontrolled disposal of chemical products and wastes. | Moderate | Soil quality | Medium | Moderate | Negligible |
| | Moderate | Groundwater quality | High | Moderate | Minor |

**Proposed Mitigation Measures**

Mitigation measures for groundwater rise and flooding

- The EPC contractor to coordinate with the concerned agency, e.g. the kokhimiyat and melioration department prior to start construction for closing of drainage collectors and determine the need for any further hydrogeologic assessment studies prior to construction.
- Carry out restoration works including culverts or similar engineering mitigation to ensure its effectiveness in draining surface water and groundwater.

Mitigation for impacts due to existing contamination

- Undertake pre-acceptance testing of imported fill material from external quarries using representative soil sampling and laboratory analysis to confirm compliance with applicable soil quality standards before transport to site.
- Develop and implement a Soil and Spoil Management Plan detailing procedures for excavation, handling, stockpiling, reuse, and disposal of soils, including measures to prevent cross-contamination between onsite and imported materials.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Segregate topsoil and subsoil during excavation and stockpiling, with clearly demarcated and labelled stockpiles, to preserve soil quality and facilitate appropriate reuse during backfilling and land raising.<br>• Limit the exposed area and duration of open excavations to reduce the potential mobilisation of contaminated soils and minimise dust generation.<br>• Ensure all site personnel involved in excavation and soil handling are provided with and use appropriate (PPE), supported by training on soil-related health and safety risks.<br>• Conduct visual inspections and periodic monitoring of excavated and imported soils during construction to identify any unexpected contamination and trigger corrective actions if required.<br><u>Mitigation for soil erosion, displacement and compaction</u><br>• Vehicle movements and parking will be restricted to defined access routes, demarcated working areas and parking bays.<br>• Design and establishment of storm-water drainage systems and erosion control measures to maintain the function of working areas in high rainfall and flash flood conditions.<br>• Prohibit the storage of materials on steep slopes;<br>• Soil-handling activities will be suspended when it is anticipated that further handling will damage the soil and seedbed, e.g., due to persistent heavy rain and snowy conditions.<br>• Existing irrigation channels crossing the project footprint will be closed off and decommissioned.<br><u>Mitigations to avoid drop in groundwater table</u><br>• Groundwater dewatering works will only be conducted as necessary (mainly during excavation and foundation construction works) and cease as soon as works are complete.<br>• Groundwater dewatering system will be designed based on the findings from detailed ground investigative works that will be conducted prior to construction, with consideration to avoid potential impacts on surrounding groundwater dependent communities.<br>• All necessary permits will be obtained prior to abstraction and discharge of ground water, in line with national laws and regulations.<br>• Communities and other nearby land users will be encouraged to contact the Project via the grievance mechanism or other means to raise any complaints related to groundwater level decline in existing wells, based on which further actions will be taken to mitigate impacts.<br>• Install multi-stage wellpoints and deep wells to create a stable drawdown cone<br>• Use sheet-piles or diaphragm walls to limit lateral inflow during groundwater dewatering. | | | | | |

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Reuse pumped water in irrigation networks wherever feasible<br><u>Mitigation for contamination of soil and groundwater</u><br>• Washing of equipment, machinery and vehicles will only be permitted in designated areas, with impermeable surfaces and dedicated drainage systems that lead to separate sumps or, treatment facilities and/or lined evaporation ponds.<br>• Concrete washout areas will be located away from storm drainage & canals and will be designed with adequate holding capacity. The wastewater will be contained within the designated impervious bund.<br>• Washout of concrete trucks will be performed in designated areas only at the batching plant or any other approved concrete washout areas at the site.<br>• If contaminated soils are observed during construction activity, the identified contaminated soil will be excavated separately, and stored or disposed of in accordance with the waste management plan as hazardous waste, to avoid cross-contamination.<br>• Any imported soils brought to the site will be from accredited quarries with certificate of quality<br>• Storage of all hazardous materials such as fuels and chemicals on an impermeable base with liners and/or secondary containment bund with enough capacity to hold 110% of the bulk storage container and 25% of the total volume of the multiple containers.<br>• Store all chemicals/materials according to manufacturer's instructions and Material Safety Data Sheet (MSDS).<br>• The chemical storage area will have proper ventilation and cover from the elements (i.e. rain, snow, sun) and different storage areas to allow for segregation of incompatible chemicals.<br>• All equipment using oils will have drip trays underneath to capture any oil leaks or drips.<br>• Contractor will develop and implement an Emergency Response Plan (ERP) and Spill Response and Contingency.<br>• Maintain an inventory of all potentially hazardous materials and chemicals used and stored on-site.<br>• All spills and leaks will be reported promptly to the Construction Manager and to be investigated to confirm the cause and put in place appropriate corrective/preventative actions.<br>• Spill kits shall be available at chemical storage areas and fully stocked with appropriate absorbent materials.<br>• Refuelling and maintenance of vehicles/equipment will be within a dedicated depot area at the site, on impermeable surface.<br>• Availability of suitable containment and spill clean-up materials/equipment at specific locations within the project site (e.g. where refuelling is to take place). | | | | | |

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Relevant personnel to be trained on emergency and spill response, containment, material handling and storage procedures.<br>• Regular emergency drills to practice timely and effective spill response.<br>• Fuel transport vehicles and equipment to be maintained and routinely inspected to ensure the tank, pumps, pipe work and the vehicle itself are free from leaks and fit for purpose-No equipment will be placed in service until deficiencies are corrected.<br>• Implement regular maintenance program of vehicles and equipment to minimise leaks or mechanical failures and keep document evidence.<br>• No storage of hazardous chemicals, oils or fuels within 100m of waterways at the Project site.<br>• The EPC Contractor will obtain relevant permits to store large quantities of hazardous materials such as diesel etc (where necessary) in accordance with Uzbek regulations.<br>• The implementation of the project CESMP and associated Waste Management Plan and Procedures will ensure that spills are kept to a minimum and are cleaned up quickly using spill kits located in risk areas.<br>• Develop and maintain a hazardous waste inventory to document and track and show chain of custody of hazardous wastes generated, and their disposal route.<br>• Implementation of good housekeeping practices during construction activities including procedures and requirements for proper handling, storage, and transport of hazardous materials and waste.<br>• The EPC Contractor and sub-contractors will provide induction training and Tool Box Talks (TBTs) relating to the management, transportation and handling of hazardous materials and wastes. | | | | | |

### 10.5.3 Resource Efficiency and Soil Reuse

In accordance with the principles of resource efficiency and circular economy, the Project will seek to maximise the beneficial reuse of excavated soils and minimise the generation of waste requiring off-site disposal. Although the Project will require substantial import of fill material to achieve the proposed site formation levels, any excavated soils and other earth materials that are suitable for engineering or landscaping purposes will be preferentially reused within the Project wherever practicable.

During the detailed design and construction planning stages, excavated materials will be characterised and segregated according to their geotechnical and environmental suitability. Suitable materials will be reused within the Project for applications such as backfilling, utility trench reinstatement, landscaping, drainage features, embankments and other engineering works, where technically feasible. This approach will minimise the generation of waste and reduce the demand for additional imported materials where opportunities for reuse exist.

Where excavated materials cannot be beneficially reused within the Project, opportunities for reuse at other suitable developments or approved recovery facilities will be considered, subject to compliance with applicable regulatory requirements and confirmation of material suitability. Disposal will be limited to materials that are unsuitable for beneficial reuse due to their geotechnical characteristics, contamination status or other technical constraints.

The detailed approach to material characterisation, segregation, temporary storage, reuse and disposal will be developed by the EPC Contractor through the Earthworks Management Plan as part of the CESMP. These plans will include procedures for identifying and documenting opportunities for beneficial reuse, minimising waste generation and ensuring that excavated soils are managed in accordance with the waste hierarchy and principles of resource efficiency throughout the construction period.

### 10.5.4 Operation Phase

During the operational phase of the airport, impacts on geology, soil, and groundwater are expected to be generally limited and localised; however, certain activities may pose risks to soil and groundwater quality if not properly managed. These include the ongoing use and storage of fuels, chemicals, de-icing agents, and maintenance-related substances, as well as alterations to surface drainage and infiltration patterns associated with paved areas and infrastructure. Given the presence of shallow groundwater and permeable subsurface conditions, the assessment focuses on the potential for contamination, changes in groundwater recharge, and the effectiveness of operational controls and monitoring measures to protect subsurface resources over the long term.

Aircraft landing, take-off, and taxiing generate dynamic loads and low-frequency ground vibrations. These forces are fully accounted for in the design of runway pavements and foundations, ensuring that stresses transmitted to underlying soils and geological formations remain well below levels that could cause deformation or instability. Ground vibration associated with aircraft movements is short-term and attenuates rapidly with distance. No adverse impacts on geology are anticipated, and vibration effects are expected to be localised and negligible beyond the immediate vicinity of operational surfaces. Therefore, this aspect is not included in the assessment.

Potential impacts identified are summarised in Table 10-10 and discussed below.

**Table 10-10 Aspects and Impacts – Geology, Soil & Groundwater during Operation**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Receptors |
|---|---|---|---|
| Aircraft refuelling & fuel storage | Fuel and hydrocarbon spills/leaks | Soil and groundwater contamination beneath fuel farms, apron areas, USTs | Soil, shallow groundwater, site workers, nearby water supply users |
| Aircraft and vehicle maintenance | Use and disposal of oils, lubricants, solvents | Localised soil contamination, potential leaching to groundwater | Soil, groundwater, nearby residents |
| De-icing and anti-icing operations | Glycol, urea, and application of other related chemicals | Groundwater contamination from infiltration of runoff; soil degradation | Groundwater quality |
| Fire training and emergency response | Use of firefighting foams (PFAS) | Persistent groundwater contamination; bioaccumulation risks | Groundwater, nearby ecosystems |
| Stormwater runoff from paved surfaces | Hydrocarbon, metal, and chemical-laden runoff | Downstream soil and shallow groundwater contamination; erosion near drainage outfalls | Surface water, soils along drainage channels, nearby communities |
| Operation of Underground Storage Tank (UST)s and pipelines | Long-term storage and transport of fuels | Undetected leaks leading to chronic subsurface contamination over time | Groundwater, soil, water supply, nearby groundwater users |
| Waste handling and disposal | Handling of hazardous and non-hazardous materials | Leachate infiltration, illegal dumping, or accidental spills | Soil, shallow groundwater. |

#### 10.5.4.1 Soil and Groundwater Contamination from Fuel handling and Maintenance Activities

Aircraft refuelling, fuel storage, and aircraft and vehicle maintenance activities involve the routine handling of fuels, oils, lubricants, and solvents. The majority of these activities will take place on paved and contained surfaces, which significantly reduces the likelihood of direct infiltration to underlying soils. However, accidental spills or leaks from fuel farms, hydrant systems, underground storage tanks (USTs), pipelines, or mobile refuelling equipment may still occur, particularly during transfer operations or equipment failure.

Where spills occur on paved surfaces, contaminants may be conveyed via surface drainage systems. In contrast, in unpaved or landscaped areas, including raised ground created through backfilling, contaminants may infiltrate directly into the soil. Given the shallow groundwater table and highly permeable gravelly subsurface, any infiltrating hydrocarbons could migrate rapidly to groundwater and potentially spread beyond the airport boundary.

Indirect impacts may therefore affect groundwater abstraction points used by nearby farmers and communities, with potential consequences for irrigation water quality and agricultural productivity. Taking into account the predominance of paved areas but the sensitivity of groundwater receptors, the magnitude of this impact is assessed as minor.

#### 10.5.4.2 Groundwater Impacts from De-icing and Anti-icing Operations

De-icing and anti-icing operations involve the seasonal application of glycols, urea, and related chemicals to aircraft and paved operational areas. Most treated surfaces will be impermeable, allowing runoff to be captured and conveyed via the airport's dedicated drainage network. This significantly limits direct infiltration to the subsurface. However, during high-intensity events or system exceedance, runoff may reach adjacent unpaved areas or infiltration zones.

In such areas, de-icing chemicals may infiltrate underlying soils and percolate to the shallow groundwater table. Given the high permeability of subsurface materials, there is potential for indirect impacts on groundwater quality, including water used by nearby farmers for irrigation or by communities for domestic purposes. While impacts are expected to be limited spatially and temporally, the sensitivity of groundwater receptors results in a moderate impact magnitude.

#### 10.5.4.3 Potential Groundwater Contamination from Firefighting & Emergency Response Activities

Firefighting and emergency response activities, including training exercises, may involve the use of firefighting foams, potentially containing Per- and polyfluoroalkyl substances PFAS compounds. PFAS are a group of synthetic fluorinated organic chemicals historically used in Aqueous Film-forming Foams (AFFF) due to their high effectiveness in suppressing hydrocarbon fuel fires. PFAS are characterised by their high environmental persistence, resistance to degradation, mobility in groundwater, and potential human health risks, and are therefore recognised as substances of concern under international good practice, including the IFC EHS Guidelines.

Within the European Union, PFAS-containing firefighting foams have been subject to progressive regulatory restrictions, and many civil airports have transitioned to fluorine-free firefighting foams (F3) as safer alternatives. International lenders and aviation authorities increasingly consider fluorine-free foams to represent best available practice for new airport developments.

While firefighting activities are generally conducted on designated, paved, and contained areas, accidental releases may still pose risks. Where firefighting agents enter unpaved areas, there is potential for direct infiltration into soils.

Due to the persistence, mobility, and bioaccumulative nature of PFAS, combined with shallow groundwater and highly permeable subsurface conditions, contaminants could migrate rapidly and persist over long periods. Indirect impacts may affect groundwater users, agricultural land, and connected ecosystems beyond the airport boundary. Despite the infrequent nature of such activities, the potential severity and long-term implications of contamination result in a Moderate impact magnitude in the absence of strict controls.

#### 10.5.4.4 Impacts from Stormwater Runoff

Stormwater runoff from paved areas within the airport, including runways, taxiways, aprons, service roads, and other operational surfaces, may contain hydrocarbons, heavy metals, rubber residues, and other contaminants associated with airport operations. The majority of these areas will be impermeable, and runoff will be directed through a dedicated internal drainage system, which substantially reduces the potential for soil and groundwater contamination.

All stormwater originating from potentially contaminating catchments within the airport, such as fuel handling areas, maintenance zones, and apron areas, will be collected and managed separately from clean runoff. These waters will be conveyed through treatment and control facilities, including sediment traps, oil-water separators, and retention or detention structures as needed, to ensure removal of hydrocarbons, suspended solids, and other pollutants. Only

stormwater that meets relevant national environmental regulations and water quality discharge standards will be released from the site.

As of the current Project design considerations, three primary discharge points will connect the internal stormwater system to external drainage collectors located along the western boundary of the airport site. These external drains will ultimately convey treated stormwater to the Chirchiq River, ensuring controlled and compliant discharge while protecting local surface water resources.

Despite the predominance of paved and controlled surfaces, infiltration from unpaved or landscaped areas, drainage collectors, and discharge points may still occur. Given the shallow groundwater table and highly permeable subsurface soils at the site, there is a potential for localised soil contamination and indirect impacts to nearby agricultural land, irrigation channels, and groundwater users.

Considering the design of the stormwater system, the separation and treatment of potentially contaminated runoff, and the controlled discharge to the Chirchiq River, the magnitude of potential impacts on soil, groundwater, and nearby receptors is considered minor. Further site-specific monitoring and adaptive management will be applied during both construction and operational phases to minimise risks.

#### 10.5.4.5 Impacts Associated with Waste Handling and Disposal

Operational waste management activities involve the handling and temporary storage of hazardous and non-hazardous wastes, including maintenance-related wastes and chemical containers. Waste handling areas will generally be paved and bunded, reducing direct exposure to soil. However, accidental spills, leaks, or poor housekeeping in adjacent unpaved areas may result in soil contamination.

Where waste-related contaminants infiltrate backfilled or natural soils, rapid migration to shallow groundwater may occur due to high permeability. Indirect impacts could affect nearby farmers and communities relying on groundwater resources, although such impacts are expected to remain localised with proper waste management practices. Accordingly, the impact magnitude is assessed as minor.

### 10.5.5 Impacts Assessment Summary – Geology, Soil and Groundwater during Operation

A summary of potential impacts on soil and groundwater receptors are presented in following table including suggested mitigation measures and residual impacts after implementation of mitigations measures.

**Table 10-11 Impact Assessment Summary – Geology, Soil and Groundwater during Operation**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Soil and Groundwater Contamination from Fuel handling and Maintenance Activities | Minor | Soil quality | Medium | Minor | Negligible |
| | | Groundwater quality | High | Moderate | Minor |
| | | Site workers | Medium | Minor | Negligible |
| Groundwater impacts from De-icing activities | Moderate | Groundwater quality | High | Moderate | Negligible |
| Groundwater Contamination from Firefighting & Emergency Response Activities | Moderate | Groundwater and nearby ecosystems | High | Moderate | Negligible |
| Stormwater runoff from paved surfaces | Minor | Soil quality | Medium | Minor | Negligible |
| | | Groundwater quality | High | Moderate | Minor |
| Impacts associated with waste handling and disposal | Minor | Soil quality | Medium | Minor | Negligible |
| | | Groundwater quality | High | Moderate | Negligible |

**Proposed Mitigation Measures**

Mitigation measures for contamination from chemicals, fuel and maintenance activities

- Segregate stormwater from potentially contaminated areas (fuel farms, aprons) from clean runoff.
- Install and maintain oil-water separators, drip trays, and containment bunds around fuel storage tanks and refueling points.
- Implement spill response protocols, including ready access to spill kits, absorbents, and trained personnel.
- Conduct regular inspections of fuel storage, refueling areas, and USTs for leaks or signs of deterioration.
- Restrict direct access to areas with shallow groundwater to minimise risk of infiltration.
- Collect runoff from maintenance and de-icing areas separately and route through dedicated treatment facilities.
- Store all chemicals in secondary containment systems (e.g., bunded areas or lined storage pads).
- Apply proper handling procedures, training staff on safe use, storage, and disposal of chemicals.
- Monitor soil and groundwater near maintenance and chemical handling areas for early detection of contamination.
- Use minimal quantities and controlled application of de-icing and anti-icing chemicals, particularly in areas close to permeable soils.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Mitigation measures for PFAS and Firefighting Foam Use<br>• Prioritise the use of fluorine-free firefighting foams (F3) wherever technically feasible.<br>• Confine firefighting foam use to designated training and emergency areas with secondary containment.<br>• Collect and treat runoff from firefighting exercises before discharge to prevent PFAS migration to soil or groundwater.<br>• Maintain records of all PFAS-containing foam usage and ensure safe storage of any legacy stocks.<br>• Conduct regular groundwater monitoring near potential foam application areas.<br><br>Mitigation measures for stormwater run off<br>• Direct all runoff from runways, taxiways, aprons, and service roads through engineered drainage systems with oil-water separators and sediment traps.<br>• Maintain three controlled discharge points on the western boundary to safely convey treated stormwater to the Chirchiq River.<br>• Implement regular cleaning and maintenance of paved surfaces to prevent accumulation of hydrocarbons, heavy metals, and rubber residues.<br>• Use retention/detention basins to manage peak flows and minimise erosion at discharge points.<br>• Monitor stormwater quality before discharge to ensure compliance with water quality standards.<br><br>Mitigation measures related to waste management<br>• Store all hazardous wastes in designated, paved, and bunded areas with secondary containment to prevent infiltration to soil.<br>• Ensure hazardous waste storage areas are covered and clearly labelled, with impermeable flooring and spill containment systems.<br>• Implement spill prevention and emergency response procedures specific to waste handling areas.<br>• Arrange for regular collection and off-site treatment or disposal by licensed waste contractors in accordance with national regulations.<br>• Develop and implement a Waste Management Plan in line with IFC EHS Guidelines, detailing waste classification, storage, handling, transport, and disposal procedures. | | | | | |

## 10.6 Monitoring

The minimum expected requirements for the monitoring are outlined in the table below. The final monitoring methodology with specific monitoring details (i.e. locations, frequencies, durations, parameters etc.) will be developed in the specific 'Environmental and Social Monitoring Plan' as part of the respective construction or operational phases ESMS.

**Table 10-12 Monitoring Requirements for Soil and Groundwater**

| Monitoring | Parameters | Frequency & Duration | Location |
|---|---|---|---|
| **Construction** | | | |
| Soil and groundwater quality | Visible spills & leaks of hydrocarbons and other potentially hazardous or chemicals | Weekly during construction | The entire project area during construction |
| | Groundwater concentration of ammoniacal Nitrogen, hydrocarbons, heavy metals, free chlorine, salinity/TDS, oils and grease, BOD, COD, Phenols and pH | Quarterly during construction | Additional wells that will be installed at Project site |
| | Hydrocarbons (TPH and BTEX) | Pre-construction | Soil samples from ESIA baseline sampling locations. |
| Imported fill verification | Undertake, representative sampling of imported soil from external quarries prior to placement to confirm compliance with acceptable soil quality criteria. Test for Heavy metals, TPH as a minimum. | Random sampling from representative locations | All quarries used for sourcing fill material |
| **Operations** | | | |
| Inspections for signs of contamination | Periodic visual inspections of | Weekly | Unpaved and landscaped areas, drainage channels, and waste handling areas |
| Groundwater quality | Groundwater concentration of hydrocarbons, heavy metals, free chlorine, salinity, oils and grease, and pH | Annually | Monitoring wells established within airport boundaries |

# 11.0 Water and Water Resources

## 11.1 Applicable Requirements and Standards

### 11.1.1 National Standards

Water resource management, allocation and use in Uzbekistan falls under the Ministry of Water Resources of the Republic of Uzbekistan which oversees national specialised associated, provisional and district departments of water resources, and inter provincial and inter-district canal management authority.

There are different standards for various type of water bodies in Uzbekistan. Depending on the purpose of use, water bodies are categorized as for domestic use (could be used as a source for potable water after treatment), fisheries, municipal use, and irrigation purposes. Table 11-1 presents the national general effluent standards into the water bodies classified by type of use.

**Table 11-1 Composition and characteristics of underground and surface water bodies[44]**

| Indicators | Purpose of water use (Categories) | |
|---|---|---|
| | I | II |
| Suspended solids | After discharge of wastewater, carrying out work on a water body, in the coastal zone and at a control point (site), the amount of solids in the water should not exceed the norm: | |
| | 0.25 mg/dm$^3$ | 0.75 mg/dm$^3$ |
| | The content of suspended solids in water bodies with a suspended solids content of more than 30 mg/dm$^3$ should not exceed 5%. | |
| | For reservoirs with high precipitation flow, precipitation is allowed to fall no more than 0.4 mm/sec, for reservoirs with low flow - more than 0.2 mm/sec. | |
| Floating matter | There should be no accumulation or formation of a film of petroleum products, oils or other contaminants on the surface of the water. | |
| Color | Shall not be detected in the column of height | |
| | 20 m | 10 m |
| Smell | The smell of water should not have an intensity of more than 2 points: | |
| | During direct or subsequent chlorination | Directly |
| Temperature | As a result of wastewater discharge, the water temperature in summer should not exceed 3°C compared to the average monthly water temperature of the warmest month of the year over the past 10 years | |
| Hydrogen exponent (pH) | It should not exceed 6.5 - 8.5 | |
| Mineralization | No more than 1000 mg/dm³, as well as: chlorides 350 mg/dm³; sulfates 500 mg/dm³ | |

[44] SanR&N No. 0083-24 for the Protection of Underground and Surface Water Bodies, Appendix 5, 2024.

| Indicators | Purpose of water use (Categories) | |
|---|---|---|
| | I | II |
| Dissolved oxygen | At any time of the year, a sample taken before 12 noon must be at least 6 $mg/dm^3$. | At any time of the year, a sample taken before 12 noon must be at least 4 $mg/dm^3$. |
| BOD | The temperature should not exceed 20°C. | |
| | 3 $mgO_2$ /$dm^3$ | 6 $mgO_2$ /$dm^3$ |
| COD | The temperature should not exceed 20°C. | |
| | 15 $mgO_2$ /$dm^3$ | 30 $mgO_2$ /$dm^3$ |
| Causes of intestinal infections | Water should not contain pathogens causing intestinal infections | |
| Viable helminth eggs and viable cysts of pathogenic intestinal protozoa | Should not be in 25 liters of water. | |
| Thermotolerant coliform bacteria (TCB) | Should not exist: | |
| | 100 CFU[45]/100 ml | 100 CFU/100 ml |
| Coliform bacteria group (CFBG) | Should not exist: | |
| | 1000 CFU/100 ml | N/A |
| Coliform | Should not exist: | |
| | 10 PFU[46]/100 ml | N/A |

There are local regulations[47] that establishes the Maximum Permittable Concentration (MPC) of pollutants for water bodies depending on their primary use which is shown in Table 11-2.

**Table 11-2 Permissible Chemical concentrations in groundwater and surface water bodies**

| Pollutants | Communal[48] | Irrigation for direct use without blending. FAO[49] | Drinking water | |
|---|---|---|---|---|
| | | | National[50] | WHO[51] |
| COD | 30 | - | 30 | |
| BOD20, $mgO_2/L$ | 3-6 | - | 3-6 | |
| pH | 6.5-8.5 | 6.5-8.5 | 6-9 | 6.5-8.5 |

[45] Colony Forming Units
[46] Plaque Forming Units

[47] SanR&N No. 0083-24 for the Protection of Underground and Surface Water Bodies, Appendix 5, 2024.

[48] SanR&N No. 0083-24 for the Protection of Underground and Surface Water Bodies, Appendix 6, 2024

[49] FAO Guidelines, Water Quality for Agriculture, 1985 (1994) http://www.fao.org/3/t0234e/t0234e01.htm

[50] O'zMSt 133:2024 - Drinking Water Hygiene Requirements and Quality Control, 2024

[51] WHO, Guidelines for drinking-water quality, Fourth Edition, 2017

| Pollutants | Communal[48] | Irrigation for direct use without blending. FAO[49] | Drinking water | |
|---|---|---|---|---|
| | | | National[50] | WHO[51] |
| Mineralization | 1000 | 0-2000 | 1000(1500) | 1000 |
| Sulphates | 500 | 1900 | 400(500) | - |
| Chlorides | 350 | 300 | 250(350) | - |
| Ammonium nitrogen + (ammonium salt) (NH4) | 2 | 0-5 | 0.5 | - |
| Nitrogen | 25 | - | 45 | |
| Nitrogen nitrite | 0.5 | 0-10 | 3 | |
| Nitrite | 3.0 | - | 3 | 3 |
| Nitrate | 45 | - | 45 | 50 |
| Phosphate (PO3-) | 1 | 0-2 | 3.5 | - |
| Ether soluble | 0.8 | - | 0.8 | - |
| Oil products | 0.3 | | 0.1 | - |
| SAS | 0.5 | | 0.5 | - |
| Phenol | 0.001 | | 0.001 | - |
| Fluorine (F) | 1.5 | | 0.7 | 1.5 |
| Arsenic (As) | 0.01 | | 0.05 | 0.01 |
| Iron (Fe) | 0.3 | | 0.3 | - |
| Chromium (Cr6+) | 0.1 | | 0.05 | 0.05 |
| Copper (Cu) | 1 | | 1 | 2 |
| Zinc (Zn) | 5 | | 3 | - |
| Cyanides | 0,07 | | 0,035 | 0 |
| Lead (Pb) | 0,01 | | 0,03 | 0.01 |
| Nickel (Ni) | 0,02 | | 0,1 | 0.07 |
| Cadmium (Cd) | 0,001 | | - | 0.003 |
| Cobalt (Co) | 0.1 | | - | - |
| Molybdenum (Mo) | 0,07 | | 0,25 | - |
| Strontium (Sr2+) | 7 | | 7 | - |
| Selenium (Se) | 0.01 | | 0,01 | 0.04 |
| Mercury (Hg) | 0,0005 | | 0,0005 | 0.006 |
| Boron (B) | 0.5 | 0-7-3 | 0.5 | 2.4 |

### 11.1.2 Lender Requirements

**IFC Performance Standards, EBRD Environmental and Social Requirements and WBG EHS Guidelines**

Water Consumption

Project lenders will require compliance with IFC PS3 for Resource Efficiency and Pollution Prevention, which, *'recognizes that increased economic activity and urbanization often generate increased levels of pollution to air, water, and land, and consume finite resources in a manner that may threaten people and the environment at the local, regional, and global levels'.*

With specific regard to water consumption, PS3 requires that client (in addition to applying resource efficiency measures) *'shall adopt measures that avoid or reduce water usage so that the Project's water consumption does not have a significant adverse impact on others*. *These measures include, but are not limited to, the use of additional technically feasible water conservation measures within the client's operations, the use of alternative water supplies, water consumption offsets to reduce total demand for water resources to within the available supply, and evaluation of alternative project locations.'*

The World Bank Group General EHS Guidelines also provide detailed recommendations on water conservation, including the reuse and recycling of process water, efficient operation of building facilities, and management of heating and cooling systems. The guidelines further emphasize best practices for water monitoring such as monitoring of water quality prior to discharge to surface water bodies and overall water management.

The EBRD's ESR 3 recommends that:

All technically and financially feasible and cost-effective opportunities for water minimisation and recovery in accordance with GIP will be identified and considered as part of the project design. Where a project specific water supply needs to be developed, the client will seek, where feasible, to utilise water for technical purposes that is not fit for human consumption.

Water Quality

Section 3.1 of the World Bank Group General EHS Guidelines includes a section on water quality and availability, which indicates that Project activities involving wastewater discharges, water extraction, diversion or impoundment should prevent adverse impacts to the quality and availability of groundwater and surface water resources.

Concerning ambient water quality, there are not specific standards, and such quality indicators are based on national standards, or other industry good practice standards.

In addition to the World Bank Group (WBG) General EHS Guidelines, the WBG EHS Guidelines for Airports are also applicable to the Project. Although these guidelines do not prescribe specific water quality standards for stormwater and wastewater, effective management of these effluents is essential to prevent adverse environmental and social impacts on local communities. The guidelines recommend several strategies for the prevention and control of impacts associated with stormwater and wastewater discharges. These include diverting and treating stormwater from areas with a high risk of chemical and fuel leaks or spills, using oil/water separators prior to discharge into surface water bodies.

**Aviation Sector Requirements**

ICAO has developed a Water Management for Airports guidelines that focus on the protection of water resources, prevention of pollution, and sustainable use and consumption of the water resources.

Some of the requirements set by ICAO relate to the design stage of the airport, where specific design considerations should be taken into account. Those cover the stormwater drainage

system design and capacity with key design aspects to comprise the return period, and slope gradients. Further, pollution control shall be addressed at the design stage as well, where it is required to have oil-water separator system in areas with fuel spills.

ICAO's guidelines and requirements emphasize the requirements for de-icing and anti-icing fluids management. Airports should recover ≥60% of spent de-icing fluids (ICAO Doc 9137), as part of the glycol recovery and management procedures. Containment systems must be put in place with impermeable pads and collection drains must be installed in de-icing areas.

The ICAO sets the environmental limit value for glycol concentration in runoff which should be less than 10 mg/l before discharge.

## 11.2 Scoping

This chapter addresses potential impacts of the Project on surface water systems in the area during construction and operation. Groundwater is assessed separately in the Hydrogeology chapter and is therefore excluded from this section.

The scope has been defined with consideration of the Project's location within an actively cultivated agricultural landscape, the presence of an extensive irrigation and drainage network within the Project footprint, and the proximity of the Chirchiq River, which represents the principal receiving water body in the wider area.

A qualitative impact assessment approach has been adopted, supported by baseline surface water sampling and review of available hydrological and land-use information. The assessment considers potential changes in water quality, drainage patterns, runoff characteristics, and downstream receptors during both construction and operational phases.

## 11.3 Sensitive Receptor

The identified sensitive receptors for water and water resources are listed in Table 11-3.

**Table 11-3 Receptors of Water Resources**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Chirchiq River | **High** | The Chirchiq River is a regionally important water resource used for irrigation, fisheries, industrial supply and drinking water abstraction. It represents a multi-use receptor of strategic importance. Any deterioration in water quality or alteration in flow regime could have wide spatial implications and affect multiple user groups. |
| Irrigations canals | **High** | Irrigation canals are critical for agricultural productivity in the surrounding cultivated lands. They provide water directly to farms and are hydraulically connected to downstream users. Any reduction in flow, obstruction, sedimentation or contamination during construction or operation could directly affect crop yields and farmer livelihoods. |
| Surface and groundwater water users (farmers, households & fishermen) | **High** | Downstream users relying on canal and river water for irrigation, domestic uses and fisheries are sensitive to both quantitative and qualitative changes in water resources. Even short-term degradation of water quality (e.g., hydrocarbons, sediment or wastewater discharge) could affect livelihoods and health. |
| Agricultural drainage channels within the Project footprint | **Medium** | Drainage ditches primarily collect return flows and excess irrigation water from agricultural land. While they are not typically used directly for abstraction, they contribute to the |

| Receptor | Sensitivity | Justification |
|---|---|---|
| | | wider irrigation network and may discharge to more sensitive receptors. Temporary water quality deterioration would likely be localised and reversible. |

## 11.4 Observation and Baseline Conditions

### 11.4.1 Water Resources

There are no natural surface water bodies located within the Project site boundary. However, the site is intersected by a network of irrigation and agricultural drainage channels that form part of a broader regional irrigation system supporting extensive cultivated lands in the surrounding area. These channels are integral to local agricultural production and represent important water management infrastructure.

Open drainage ditches (see Figure 2-7), generally situated below ground level, were observed between agricultural fields within and adjacent to the Project footprint. These channels collect irrigation return flows and surface runoff from surrounding farmland and convey water downstream through the wider irrigation network. As such, although no natural watercourses are present on site, the Project area is hydrologically connected to the regional surface water system.

The nearest natural surface water body is the Chirchiq River (see Figure 2-17), located approximately 2.3 km west of the Project boundary (refer to). The Chirchiq River is a major tributary of the Syrdarya River, the longest river in Central Asia. The river has an overall length of approximately 174 km and a drainage basin area of approximately 14,240 km².

Hydro morphologically, the Chirchiq River is divided into two main sections: the upper reach extending approximately 29 km from the confluence of the Chatkal and Pskem rivers to the headworks of the Chirchiq hydroelectric power station, and the lower reach extending approximately 145 km from the hydropower headworks to its confluence with the Syrdarya River.

The Chirchiq River is a strategically important regional water resource. It is used for irrigation, industrial supply, fisheries, and drinking water abstraction. Numerous irrigation canals divert water from the river to support agricultural activities across Tashkent Province. The river is also classified as a fishery water body, which imposes specific regulatory requirements on wastewater discharge quality.

Given the hydraulic connectivity between the Project area's irrigation network and the wider river basin, and the multiple downstream uses of the Chirchiq River, surface water resources in the area are considered environmentally and socio-economically significant receptors for the purposes of this assessment.

### 11.4.2 Water Usage by Communities

ESIA stage socioeconomic survey data indicate that nearby communities rely predominantly on local groundwater abstraction systems for both domestic and drinking water needs as shown in Table 11-4 and Table 11-5. The majority of households obtain water through water pumping units ("kachalka"), which represent the principal source of supply for general household use and drinking purposes.

Access to a centralised piped water connection within the home is comparatively limited, serving only a small proportion of households. A slightly higher proportion report access to

external or shared water supply systems, though this remains secondary to groundwater pumping.

For drinking water specifically, reliance on pumping units remains the dominant source, although a notable proportion of households supplement their supply through delivered and purchased water or bottled water. This suggests that while groundwater pumping provides widespread access, some residents may seek alternative sources for potable water quality assurance. Use of surface water sources such as rivers for domestic or drinking purposes is minimal.

Overall, the data demonstrate a strong dependence on shallow groundwater abstraction for household water supply, with limited reliance on formal centralised water infrastructure. This pattern highlights the importance of protecting groundwater quality and availability in the Project area, as changes to local hydrogeological conditions could directly affect community water security.

**Table 11-4 Domestic Water Source for Communities**

| Source of Water for Domestic Needs | Male Headed Household | Female Headed Household |
|---|---|---|
| Central water pipe in the house | 10% | 11% |
| Outside water supply system | 1% | 2% |
| Local artesian well | 3% | 1% |
| Natural springs | 0.5% | 1% |
| Water pumping units (kachalka) | 81% | 83% |
| Delivered and purchased water | 1% | 0% |
| Water from river, canals, ponds and ditches | 1% | 1% |
| Others | 0.5% | 0% |

**Table 11-5 Drinking Water Source for Communities**

| Source of Water for Drinking Purpose | Male Headed Household | Female Headed Household |
|---|---|---|
| Central water pipe in the house | 10% | 13% |
| Outside water supply system | 6% | 2% |
| Local artesian well | 3% | 1% |
| Water pumping units (kachalka) | 61% | 67% |
| Delivered and purchased water | 10% | 11% |
| Bottled water from shops (or vending machine) | 7% | 4% |
| Water from river, canals, ponds and ditches | 1% | 1% |
| Others | 0.5% | 0% |

### 11.4.3 Surface Water Quality

#### 11.4.3.1 Surface Water Baseline Surveys

Baseline surface water sampling was undertaken within existing irrigation and drainage channels located inside the Project footprint. These channels are currently used for agricultural water supply and return flows and represent sensitive receptors due to their importance for local farming activities.

In addition, due to the proximity of the Project site to the Chirchiq River and the assumption that treated surface water runoff may ultimately discharge to this river system, baseline sampling of the Chirchiq River was included within the assessment scope.

A total of four (4) samples were collected from the Chirchiq River and four (4) samples from irrigation and drainage channels. Sampling locations are indicated in Figure 11-1. All samples were analysed by an approved laboratory in Tashkent.

The surface water sampling was designed to establish representative baseline conditions for the Chirchiq River and the network of irrigation and drainage channels that traverse and surround the Project site which are the principal surface water receptors that could potentially be influenced by the Project.

Sampling locations were selected based on a combination of factors, including proximity to the Project footprint, the local drainage and irrigation network, accessibility, and the need to capture potential spatial variations in water quality. The samples were collected from the Chirchiq River to provide representative coverage along the section of river closest to the Project and to account for potential variability in water quality associated with upstream and downstream influences.

The overall sampling strategy was therefore developed to provide representative baseline coverage of both the main natural watercourse (the Chirchiq River) and the local irrigation and drainage network that characterises the Project area, thereby establishing an appropriate baseline against which any future Project-related changes can be assessed.

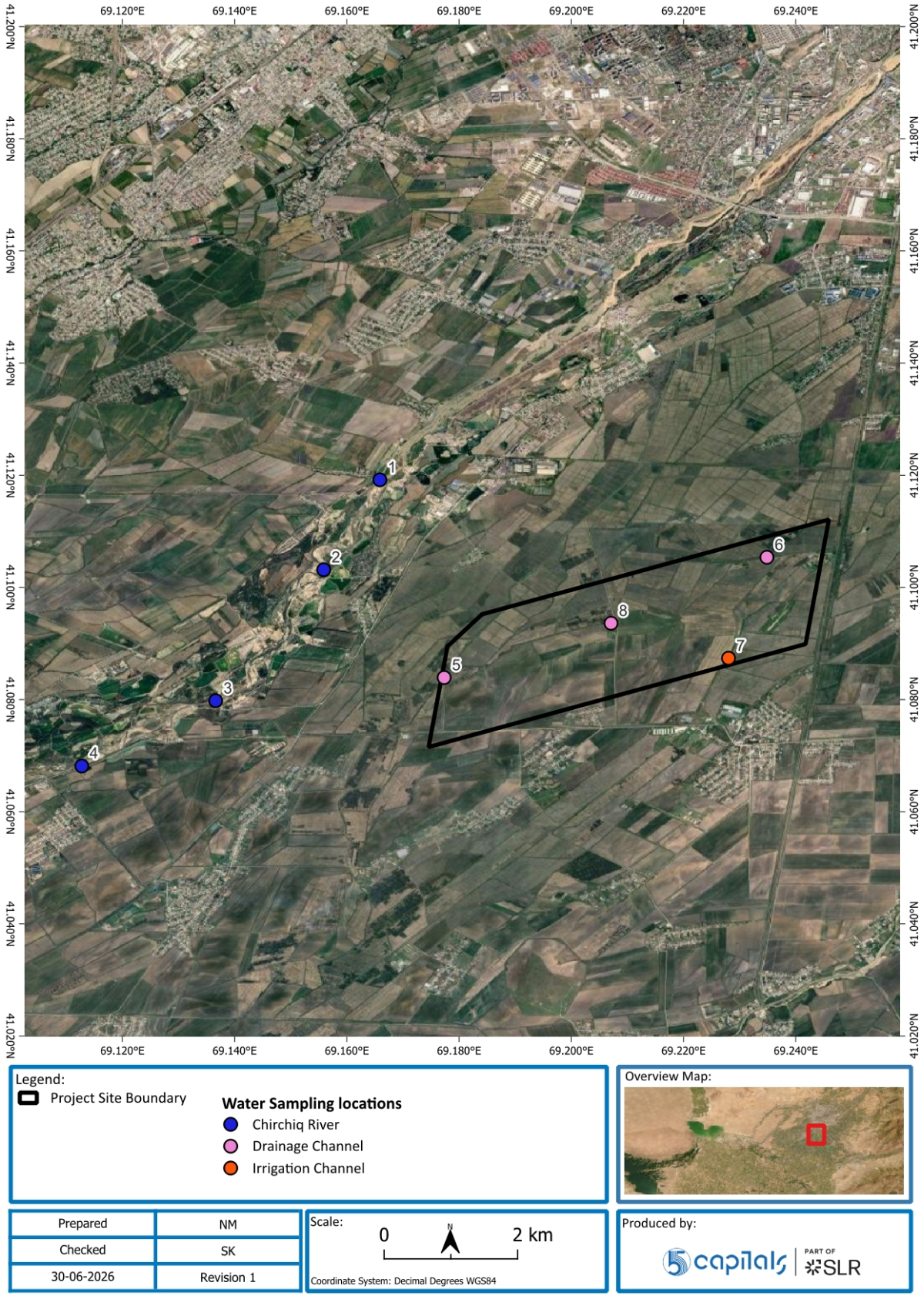



**Figure 11-1 Surface Water and Groundwater Sample Collection Locations**

The analytical suite was designed to reflect both agricultural land-use influences and potential airport-related contaminants. Parameters analysed included:

- pH
- Nitrate and phosphate
- Selected heavy metals
- BOD
- COD

Laboratory analyses results are shown in Table 11-6 which are compared against the applicable national standards MPC for the Protection of Underground and Surface Water Bodies.

**Table 11-6 Result of Chemical Analysis of Surface Water**

| Parameter | Concentrations – Lab Results | | | | | | | | MPC SanR&N No. 0083-24 |
|---|---|---|---|---|---|---|---|---|---|
| | Chirchiq River | | | | Drainages and canals | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7[1] | 8 | |
| pH | 7.54 | 7.7 | 7.62 | 7.54 | 7.57 | 7.73 | 7.74 | 7.69 | 6.5-8.5 |
| Nitrates, mg/l | 4.96 | 1.8 | 2.08 | 2.04 | 1.15 | 0.93 | 3.09 | 1.5 | 45 |
| Phosphates, mg/l | 0.06 | 0.1 | 0.05 | 0.06 | 0.01 | 0.01 | 0 | 0.35 | 1 |
| $BOD_5$, mg O/l | 2.62 | 2.4 | 3.5 | 4.03 | 1.77 | 5.78 | 1.01 | 6.46 | 3[2] |
| COD, mg O/l | 8.99 | 5.6 | 7.49 | 5.99 | 7.05 | 10.5 | 8.99 | 6.77 | 30 |
| Copper, µg/l | 2.87 | 2.3 | 2.66 | 2.4 | 2.45 | 2.69 | 2.49 | 5.8 | 1 |
| Zinc, µg/l | 13.2 | 6.4 | 24.8 | 8.61 | 10.9 | 9.16 | 8.03 | 15.8 | 5 |
| Cadmium, µg/l | 2.17 | 2.3 | 2.41 | 2.54 | 2.74 | 2.92 | 2.77 | 2.84 | 0.001 |

Note: [1] This is irrigation canal
[2] This is $BOD_{20}$
Exceedances are highlighted in pink and blue (potential exceedance)

Baseline surface water quality in the Project area has been characterised through targeted sampling of the Chirchiq River and the local irrigation and drainage network within the Project site. A total of eight (8) samples were analysed for pH, nutrients (nitrates and phosphates), Biochemical Oxygen Demand ($BOD_5$), Chemical Oxygen Demand (COD), and selected trace metals (copper, zinc, cadmium) in an accredited laboratory in Tashkent.

Measured pH values ranged from 7.54 to 7.74, indicating neutral to slightly alkaline conditions consistent with regional alluvial waters, and well within the national water quality range of 6.5 to 8.5. Nitrate concentrations were low (0.93 to 4.96 mg/l), substantially below the national MPC of 45 mg/l, reflecting limited nutrient loading from both agricultural return flows and natural background conditions. Phosphate concentrations were also low (maximum of 0.1 mg/l), below the MPC of 1 mg/l and typical of surface waters influenced by diffuse agricultural land use rather than point-source discharges.

Organic matter indicators showed moderate levels. $BOD_5$ ranged from 1.01 to 6.46 mg/l, with four samples, two collected from Chirchiq River and the other two from the drainage collector, exceeding the lower limit of the national MPC threshold of 3 mg/L. It is noted that $BOD_5$ measures oxygen demand over five days, while longer-duration tests such as $BOD_{20}$ (measured over 20 days which the MPC standard refers to) typically yield higher values (often 1.3–1.5 times $BOD_5$). Therefore, the biodegradable organic load in these waters may be underestimated by $BOD_5$ alone, although corresponding COD values (5.6–10.5 mg/l) were

below the MPC of 30 mg/l. However, considering the above mentioned difference in standards, samples 1 and 2 collected from the Chirchiq River are also likely to marginally exceed the applicable $BOD_{20}$ standard of 3 mg/l, indicating overall moderate organic influence.

Trace metal analysis revealed that copper, zinc, and cadmium concentrations exceed the respective national MPC values at all sites. Copper ranged from 2.3 to 5.8 mg/l (MPC 1 mg/l), zinc from 6.4 to 24.8 mg/l (MPC 5 mg/l), and cadmium from 2.17 to 2.92 mg/l (MPC 0.001 mg/l). These exceedances most likely reflect background geochemical conditions influenced by long-term agricultural land use and the parent geology of the alluvial plain rather than local point-source pollution. Cadmium in particular is known to occur as a trace impurity in phosphate-based fertilisers and can accumulate progressively in soil and water through repeated agricultural application. Similarly, copper and zinc are micronutrients present in some fertilisers and pesticides, and their mobilisation can be enhanced by irrigation practices and soil-water interactions. These diffuse, historic agricultural inputs, coupled with the highly permeable alluvial system and irrigation return flows, likely contribute to the observed elevated trace metal levels.

Overall, the Chirchiq River and local irrigation network exhibit surface water quality that is typical for an agriculturally influenced alluvial system.

## 11.5 Potential Impacts, Mitigation, and Management

### 11.5.1 Construction Phase

This section presents the assessment of potential impacts on water and water resources associated with the construction and operational phases of the Project. The assessment considers changes in water availability, alterations to irrigation and drainage infrastructure, potential deterioration of surface water quality, and indirect effects on downstream users. Potential impacts during construction are listed in Table 11-7.

**Table 11-7 Aspects and Impacts – Water and Water Resources during Construction**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| Construction water requirements | Use of water resources | Possible reductions in supply to other users due to water demand | Water users within the adjacent agricultural lands and communities |
| Land clearance, demolishing of existing structures, excavation, and preparation works | Relocation and disturbance to existing small irrigation channels, drainage ditches, and wastewater canals | Possible impacts to irrigation channels that supply adjacent or other nearby fields for irrigation, and wastewater canals that serve the agricultural lands and settlements adjacent to the project. | Adjacent agricultural land users and communities |
| | | Reduced drainage capacity from fields. | |
| | | Possible impacts on water quality of the existing water infrastructure network, mainly by increasing sediment and turbidity levels. | |

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| Excavation activities | Sedimentation | Sediments accumulation in the existing water infrastructure network (irrigation and wastewater channels, and drainage ditches). | Irrigation and wastewater channels, and drainage ditches |
| Various construction activities | Generation of wastewater (sanitary wastewater, concrete washout) | Potential impacts and pollution to drainage ditch water quality if effluents are not effectively contained, managed or are otherwise discharged without effective treatment. | Drainage ditch water quality and aquatic species |
| Dewatering of groundwater | Discharge of dewatering water. | Discharge outfall location and initial mixing zone. Further downstream depending on discharge volume | Chirchiq river, downstream water users |
| Rainfall | Runoff with additional suspended sediment loads | Potential impacts to drainage ditch water quality particularly sediment loads, or other pollutants that may be washed off the construction working areas | Drainage collectors |

#### 11.5.1.1 Construction Water Requirements

Based on information provided by the EPC Contractor, water required for construction activities (e.g. dust suppression, concrete works, equipment washing and general site use) and domestic purposes is expected to be sourced primarily from groundwater abstracted from onsite production wells. Where necessary, a proportion of the water demand may also be supplied by an approved external water supplier. As outlined earlier in this report, the total tentative water requirement during the peak construction period is estimated to be approximately 2,500 m³/day.

Groundwater is also used by local communities and agricultural users within the wider area. However, based on the available hydrogeological information, the local groundwater resource is considered capable of supporting the proposed temporary construction-phase abstraction without resulting in significant adverse effects on existing users. In addition, groundwater abstraction will be subject to the applicable permitting requirements and any associated conditions established by the competent authorities, including abstraction limits and monitoring requirements where applicable.

Accordingly, construction activities will result in a temporary increase in groundwater abstraction. In the absence of appropriate mitigation measures, the potential impact on groundwater availability for existing users is assessed as moderate.

#### 11.5.1.2 Disturbance to Irrigation and Drainage Infrastructure

Land clearance, demolition of existing structures, excavation, and site preparation works will require relocation, diversion, or temporary interruption of small irrigation channels, drainage ditches, and wastewater canals that traverse the site. These channels form part of a broader agricultural water management system supporting adjacent fields.

Physical obstruction or damage to these channels could temporarily reduce irrigation supply to downstream farms or impair drainage capacity, potentially leading to waterlogging or reduced irrigation efficiency. The zone of influence would extend beyond the Project boundary through the interconnected canal system.

Given the importance of irrigation to local agriculture and the documented reliance on canal and pumping systems, receptor sensitivity is high. If not properly managed, the magnitude of impact could be moderate during construction. However, with planned diversion works, staged construction, and reinstatement of channels, impacts are expected to be temporary and reversible.

#### 11.5.1.3 Sedimentation and Construction Runoff

Excavation activities and exposed soil surfaces create the potential for erosion and sediment transport into nearby drainage ditches and irrigation canals. Stormwater runoff may also mobilise construction-related pollutants, including suspended solids, trace hydrocarbons, and concrete wash residues, particularly during rainfall events.

Given the relatively low baseline nutrient and organic loading in surface waters, increases in sediment or contaminant concentrations could temporarily alter local water quality, primarily through elevated turbidity and suspended solids. Such impacts would be episodic and largely confined to periods of heavy rainfall.

Without mitigation, the magnitude of impact could be moderate, especially during intense storm events. However, with implementation of appropriate erosion and sediment control measures, impacts are expected to be minor, localised, and limited to the construction period, with effects generally confined to adjacent drainage infrastructure and potentially short downstream reaches if not properly managed.

#### 11.5.1.4 Construction Wastewater and Accidental Releases

Sanitary wastewater from construction workers and wastewater from activities such as concrete washout present potential contamination pathways if not properly contained and treated. Discharge of untreated effluent into drainage ditches could increase nutrient concentrations, organic loads (BOD), and pH levels.

Baseline surface water monitoring shows $BOD_5$ values generally within or near regulatory thresholds and low nutrient concentrations; therefore, any uncontrolled discharge could result in short-term exceedances of standards.

The magnitude of this impact is considered moderate in the absence of controls but would reduce to low with appropriate wastewater management systems, containment measures, and designated washout areas. Impacts would be localised and temporary.

#### 11.5.1.5 Discharge of Dewatering Groundwater

Construction of below-ground structures will require temporary dewatering, generating substantial volumes of abstracted groundwater. Based on the hydrogeological assessment, the underlying gravel aquifer is highly permeable, with rapid groundwater movement and strong hydraulic connectivity. Dewatered groundwater is anticipated to be discharged, subject to regulatory approval, to the Chirchiq River.

Baseline groundwater quality results indicate neutral pH, low nitrate and phosphate concentrations, moderate organic parameters, and elevated concentrations of certain trace metals (notably copper, zinc, and cadmium) above national MPC screening thresholds. These elevated metals are considered reflective of regional geochemical conditions and long-term agricultural influences rather than site-specific contamination.

Discharge of untreated dewatered groundwater could therefore contribute to incremental increases in trace metal concentrations in receiving waters, particularly given that baseline surface water sampling has also shown elevated metal concentrations relative to national standards. While the overall water chemistry is not indicative of severe contamination, the high sensitivity of the Chirchiq River which is used for irrigation, fisheries, and drinking purposes requires careful management of any discharge.

The potential impact is assessed as moderate in magnitude without treatment or controlled discharge, particularly due to the large, anticipated discharge volumes and cumulative contribution to existing background metal levels. With appropriate management measures such as settlement tanks, filtration (if required), controlled discharge rates, and compliance monitoring to ensure adherence to applicable discharge standards the residual impact is expected to be minor and temporary, limited to the construction phase.

### 11.5.2 Impacts Assessment Summary – Water and Water Resources during Construction

A summary of potential impacts on water resources during construction and their effects on identified receptors are presented in following table including suggested mitigation measures and residual impacts after implementation of mitigations measures.

**Table 11-8 Impact Assessment Summary – Water and Water Resources during Construction**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Construction stage water consumption | Moderate | Groundwater users including farmers | High | Moderate | Minor |
| Disturbance to irrigation and drainage infrastructure | Moderate | Surface water users including farmers | High | Moderate | Minor |
| | | Irrigation canals | High | Moderate | Negligible |
| Construction site run off and sedimentation | Moderate | Irrigation canals | High | Moderate | Negligible |
| | | Surface water users including farmers | High | Moderate | Minor |
| Release of construction water accidental release of chemicals | Moderate | Irrigation canals | High | Moderate | Negligible |
| | | Surface water users including farmers | High | Moderate | Minor |
| Discharge of dewatering groundwater | Moderate | Chirchiq River | High | Moderate | Minor |

**Proposed Mitigation Measures**

Mitigation for construction stage groundwater extraction

- All required groundwater abstraction permits will be obtained from the competent authority prior to abstraction and comply with all abstraction limits, monitoring requirements and permit conditions.
- Production well testing (yield and drawdown tests) will be undertaken prior to large-scale abstraction to verify the sustainable yield of the aquifer and confirm that the proposed abstraction rate will not adversely affect nearby groundwater users.
- Abstraction will be restricted to the minimum volume required for construction.
- Water use will be optimised through efficient construction practices.
- External water suppliers will be used whenever onsite abstraction cannot sustainably meet demand.
- Monitoring wells will be installed (or utilise production wells where appropriate) to monitor groundwater levels regularly during construction to record abstraction volumes daily.
- Representative nearby community/agricultural wells will be monitored where appropriate and agreed with the authorities. Investigate any unexpected declines potentially associated with Project abstraction.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • If monitoring indicates unacceptable impacts, abstraction rates will be reduced, rotate abstraction between wells, supplement with externally supplied water, or temporarily suspend abstraction until groundwater levels recover.<br>• Treated wastewater will be reused where practicable (e.g. dust suppression).<br>• The use of potable water for non-potable construction activities will be avoided as much as possible.<br><u>Mitigation for disturbance to irrigation and drainage collectors</u><br>• A Water Management and Implementation Plan will be prepared and implemented by the concerned local entity prior to start of works.<br>• Continuous water flow will be maintained through temporary bypass channels or phased diversion works.<br>• All irrigation and drainage infrastructure will be reinstated to equal or improved hydraulic capacity following construction.<br>• All works will be coordinated with the local community water users including farmers, particularly during peak irrigation seasons.<br><u>Mitigation for sediment run off and sedimentation</u><br>• Install silt fences, sediment traps, and settlement ponds around excavation areas where necessary.<br>• Stabilise exposed soils promptly through compaction, temporary seeding, or covering.<br>• Limit open excavation areas during periods of forecast heavy rainfall.<br>• Implement controlled site drainage to prevent uncontrolled discharge to canals.<br>Note: Mitigation measures mentioned in the soil and groundwater section are also applicable for controlling potential impacts on water resources. | | | | | |

## 11.6 Operation Phase

Potential impacts on water and water resources in the area due to routine operation of the airport are listed in Table 11-9.

**Table 11-9 Aspects and Impacts – Water and Water Resources during Operation**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| Aircraft and ground vehicle washing and cleaning of runway and apron | Use of detergents and presence of oil and other chemical (e.g. from de-icing) residues in wash water | Contaminants may be washed into stormwater system, reaching nearby water bodies | Nearby agricultural land users<br><br>Surface water quality and aquatic species<br><br>Downstream water users |
| Wastewater generation from routine airport operations | Discharge of untreated wastewater | Overloading of treatment systems and risk of untreated or partially treated effluent entering river and other surface water bodies | |
| Stormwater run off | Oil, fuel, heavy metals accumulation on surfaces | Risk of contaminated runoff entering nearby drainage network and potential discharge to Chirchiq river and other water bodies | |
| Irrigation of landscaped areas | Excess nutrients, pesticide use | Leaching of fertilizers and chemicals into drainage ditches or shallow groundwater | Groundwater, nearby drainage ditches |

#### 11.6.1.1 Aircraft and Ground Vehicle Washing; Runway and Apron Cleaning

During operation, washing of aircraft and ground vehicles, as well as cleaning of paved surfaces, may generate wastewater containing detergents, hydrocarbons, rubber residues, trace metals, and potentially de-icing chemicals. If not effectively captured and treated, these contaminants could enter the stormwater system and subsequently discharge to irrigation canals or ultimately the Chirchiq River.

Baseline results indicate existing trace metal concentrations above national MPC values, likely linked to agricultural and geogenic sources. Additional inputs from airport activities could cumulatively increase concentrations in receiving waters.

Given the sensitivity of downstream users, including agricultural abstraction, fisheries, and drinking water supply, the magnitude of impact could be moderate without adequate stormwater treatment. With appropriate oil-water separators, containment systems, and treatment infrastructure, the residual impact is expected to be negligible.

#### 11.6.1.2 Wastewater Generation from Routine Airport Operations

Operational activities will generate domestic and potentially industrial wastewater requiring treatment prior to discharge. Inadequate treatment performance or system overloading could result in elevated nutrient and organic loads entering receiving waters.

Considering that baseline $BOD_5$ values are already within regulatory ranges and that the Chirchiq River is designated for multiple uses including fisheries and drinking water abstraction, receptor sensitivity is high.

The magnitude of impact could be moderate to high in the event of system failure, but under normal operation with properly designed and maintained treatment facilities, the impact is expected to be low and compliant with standards.

#### 11.6.1.3 Stormwater Runoff from Operational Surfaces

Airport pavements may accumulate oil residues, fuel spills, heavy metals, and particulate matter over time. During rainfall events, these pollutants may be mobilised and transported through the stormwater drainage system.

Given the proximity of agricultural canals and the hydraulic connectivity of the drainage network to the Chirchiq River, poorly managed runoff could contribute to cumulative water quality degradation.

The magnitude of impact is assessed as moderate without mitigation, particularly during intense rainfall events, but low with effective stormwater management design, including sediment traps, oil separators, and controlled discharge systems.

#### 11.6.1.4 Irrigation of Landscaped Areas

Landscaping associated with airport operations may require irrigation and application of fertilizers or pesticides. Excess nutrients or chemicals could leach into drainage ditches or infiltrate into shallow groundwater, contributing to diffuse pollution over time.

Considering that baseline water quality already reflects long-term agricultural influences, additional nutrient loading could incrementally increase concentrations in local drainage waters.

The magnitude of this impact is assessed as moderate to minor, depending on the scale of chemical use and irrigation practices. With implementation of controlled application rates and integrated pest management approaches, impacts are expected to remain minor.

#### 11.6.1.5 Operational Water Use and Impacts on Resources

During operation, the Project will require potable water for terminal operations, passenger use, staff facilities, commercial activities and other ancillary airport functions. Potable water demand is estimated to be approximately 1,310 m³/day during the opening year, increasing to approximately 3,340 m³/day at the ultimate airport development. The cumulative assessment therefore considers the increase in operational water demand associated with the ultimate airport masterplan.

The current design proposes that the airport will initially be supplied by groundwater abstracted from deep boreholes, pending confirmation of the long-term water supply strategy and the potential future availability of regional bulk water supply infrastructure. At this stage, the final water supply solution, abstraction locations and sustainable abstraction rates have not been confirmed and will be established during detailed design following hydrogeological investigations and consultation with the relevant authorities. Accordingly, the assessment has been undertaken qualitatively.

Existing information on groundwater abstraction and irrigation water demand within the wider area of influence is limited. Although agriculture is recognised as the principal water user within the surrounding area, sufficient quantitative baseline information is not currently available to undertake a robust comparison between the airport's future operational water demand and existing regional water abstractions. Consequently, the assessment adopts a precautionary approach and recognises that confirmation of sustainable groundwater availability and

abstraction rates will form an important component of the detailed hydrogeological investigations undertaken prior to finalising the operational water supply strategy.

The Project incorporates a number of measures to minimise operational water demand. The terminal building is being designed to achieve LEED Silver certification, incorporating water-efficient fixtures, fittings and water management practices to reduce potable water consumption. In addition, the proposed water supply system includes separate potable and non-potable water networks, enabling the reuse of treated wastewater for suitable non-potable applications, including irrigation, toilet flushing and other operational uses, thereby reducing reliance on potable water resources.

Given the relatively modest airport water demand in the context of regional water use, together with the implementation of water conservation measures and the requirement for any groundwater abstraction to comply with applicable permitting and regulatory requirements, significant adverse impacts on groundwater resources or existing water users are not anticipated. Nevertheless, there remains the potential for minor adverse impacts associated with increased demand on local water resources should groundwater be utilised as the interim water supply.

The impact is therefore assessed as minor adverse. This assessment assumes implementation of sustainable water management measures, regulatory controls and groundwater monitoring. The final water supply strategy, together with any associated management and monitoring requirements, will be confirmed during detailed design and incorporated into the Operational Environmental and Social Management Plan (OESMP).

### 11.6.2 Impacts Assessment Summary – Water and Water Resources during Operation

A summary of potential impacts on water resources during operation and their effects on identified receptors are presented in following table including suggested mitigation measures and residual impacts after implementation of mitigation measures.

**Table 11-10 Impact Assessment Summary – Water and Water Resources during Operation**

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Impacts associated with stormwater run off from airport premises | Moderate | Surface water users including farmers | High | Moderate | Minor |
| | | Irrigation canals | High | Moderate | Negligible |
| | | Chirchiq River | High | Moderate | Minor |
| Discharge of wastewater to nearby receiving waters | Moderate | Irrigation canals | High | Moderate | Negligible |
| | | Surface water users including farmers | High | Moderate | Minor |
| Impacts from irrigation of landscaped areas | Moderate | Irrigation canals | High | Moderate | Negligible |
| | | Surface water users including farmers | High | Moderate | Minor |
| Operational water use | Minor | Water resources users including farmers | High | Minor | Negligible |

**Proposed Mitigation Measures**

Mitigation for aircraft and vehicle washing and airside cleaning

- Conduct aircraft and vehicle washing only in designated, impermeable wash bays connected to the wastewater treatment system to prevent discharge into the stormwater network.
- Ensure all wash water is captured through a sealed drainage system with no direct hydraulic connection to surface water channels.
- Install appropriately sized oil-water separators and sediment traps to remove hydrocarbons, suspended solids, and associated trace metals prior to discharge to the treatment plant.
- Select biodegradable, low-toxicity detergents and approved de-icing agents to minimise chemical loading.
- Implement regular inspection, desludging, and maintenance of separators and drainage infrastructure to ensure design efficiency is maintained.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Mitigation for stormwater runoff<br>• Design a closed stormwater drainage network incorporating oil-water separators, sedimentation chambers, and flow control structures.<br>• Incorporate first-flush capture systems to treat the initial runoff, which typically contains the highest pollutant concentrations.<br>• Conduct regular mechanical sweeping of aprons, taxiways, and parking areas to reduce pollutant build-up prior to rainfall events.<br>• Monitor stormwater discharge quality, particularly during significant rainfall events, to confirm effectiveness of treatment systems.<br>Mitigations to Reduce Impacts from Operational Water Consumption<br>• Design and operate the terminal and associated facilities in accordance with LEED Silver certification requirements, including the incorporation of water-efficient fixtures, fittings, and appliances.<br>• Reuse treated wastewater, where feasible and appropriate, for non-potable applications such as landscape irrigation and other suitable operational uses.<br>• Develop and implement a Water Management Plan as part of the OESMP, including procedures for monitoring water consumption, investigating abnormal water use, and identifying water-saving opportunities.<br>• Ensure that any groundwater abstraction is undertaken in accordance with applicable permits, approvals, and regulatory requirements.<br>• Maintain water supply infrastructure to minimise leakage and water losses through routine inspection, preventative maintenance, and timely repair of defects.<br>• Engage with relevant authorities regarding long-term integration with planned regional bulk water supply infrastructure, where available.<br>• Utilise the RRM for receiving and responding to stakeholder grievances relating to water supply or perceived impacts on local water users.<br>Note: Mitigation measures mentioned in the soil and groundwater section are also applicable for controlling potential impacts on water resources. | | | | | |

## 11.7 Monitoring

The minimum expected requirements for the monitoring related to water quality are outlined in the table below. The final monitoring methodology with specific monitoring details (i.e. locations, frequencies, durations, parameters etc.) will be developed in the specific 'Environmental and Social Monitoring Plan' as part of the respective construction or operational phases ESMS.

**Table 11-11 Monitoring Requirements for Soil and Groundwater**

| Monitoring | Parameters | Frequency & Duration | Location |
|---|---|---|---|
| **Construction** | | | |
| Visual inspection of sediment control measures | Integrity of silt fences, sediment traps, settlement ponds; evidence of erosion | Weekly and after heavy rainfall events throughout construction | Around excavation areas, site perimeter, and adjacent drainage channels |
| Visual inspection for irrigation and drainage channel functionality | Flow continuity, blockage, sediment accumulation | Monthly during construction and after diversion works | Irrigation canals and drainage ditches within and adjacent to Project site |
| Dewatered groundwater discharge monitoring | pH, turbidity, TSS, $BOD_5$, COD, nitrates, phosphates, oil & grease, Heavy Metals (at least copper, zinc, cadmium) | Weekly during active dewatering; prior to commencement of discharge; adjust based on regulatory requirements | At dewatering discharge outlet prior to release to drainage system or river |
| **Operations** | | | |
| Stormwater discharge quality monitoring | pH, turbidity, TSS, oil & grease, COD, copper, zinc (and other relevant pollutants) | Quarterly, and during first significant rainfall events of wet season | Main stormwater outfalls prior to discharge to drainage canals or receiving waters |
| Surface water quality surveillance (receiving waters) | pH, turbidity, TSS, $BOD_5$, COD, nitrates, phosphates, oil & grease, Heavy Metals (at least copper, zinc, cadmium) | Biannually, additional sampling if non-compliance detected | Upstream and downstream locations in irrigation canals and, if applicable, Chirchiq River downstream of discharge |

# 12.0 Waste and Waste Management

*Please note: this section considers the management of solid waste and wastewater and not its impacts to environmental receptors. Considerations of such impacts are made in other respective chapters of the ESIA.*

## 12.1 Applicable Requirements and Standards

### 12.1.1 National Standards

The legislation on waste management consists of the Law "On Waste" and other legislative acts listed below.

Law of the Republic of Uzbekistan No. 362-II "On Waste" (2002, amended in 2025) regulates relations in the field of waste management, including hazardous waste. The main objectives of this Law are to prevent the harmful effects of waste on the life and health of citizens, the environment, reduce the generation of waste and ensure their rational use in economic activities.

According to the Law "On Waste", the concept of "hazardous waste" is waste containing substances that have at least one of the hazardous properties (toxicity, infectivity, explosion hazard, fire hazard, high reactivity, radioactivity) and are present in such quantities and in such a form that they pose an immediate or potential danger to the life and health of citizens, the environment, both independently and in contact with other substances.

Decree of the Cabinet of Ministers of the Republic of Uzbekistan No 14 "On approval of the regulations on the procedure for developing and approving draft environmental standards" (2014, amended in 2022)

The inventory of waste generation and disposal is carried out in accordance with the requirements of Appendix No. 14 of this decree. The document provides a description of the procedure for developing environmental standards for the generation and disposal of waste (Chapter V). The hazard class of waste for the environment is determined by the waste classification catalogue in the form according to Appendix No. 15 to the Decree.

SanR&N No 0127-02 "Sanitary rules for inventory, classification, storage and disposal of industrial waste" describes the requirements for collection and generation, accounting and inventory of industrial waste taking into account their hazard class. Waste hazards are assessed based on this law. Hygienic classifier of industrial hazardous waste and SanR&N No 0127-02-Sanitary procedures for industrial waste inventory, classification, storage and disposal. Waste hazard classes include:

- Class I: Extremely hazardous waste;
- Class II: Highly hazardous waste;
- Class III: Moderately hazardous waste;
- Class IV: Low hazardous waste.

According to this regulation, when determining the hazard class of industrial waste, it is necessary to take the most complete account of all the chemical hazardous substances included in it, which is possible when conducting laboratory studies of their composition or based on literary data. If it is not possible to determine all the components included in the industrial waste and capable of polluting the soil, their hygienic assessment should be carried out for the most toxic chemical substances, i.e. for the compounds most dangerous to humans. In the absence of indications of the hazard class of a chemical substance in the regulatory and design documents used, it is determined by the hazard index, which is established by

calculating the MPC of the harmful substance in the soil, the LD50[52] of the harmful substance, and the hazard class of the harmful substance in the air of the working area.

SanR&N No 0128-02 are used - "Hygienic classifier of toxic industrial waste in the conditions of the Republic of Uzbekistan": data from this standard is used in the absence of results from studying the chemical composition of industrial waste, which is intended to improve accounting and reporting of industrial toxic waste, determine methods for their disposal, processing or placement in the environment. The classifier shows the values of 134 toxic industrial wastes, including 16 of the first, 53 of the second, 37 of the third and 28 of the fourth hazard classes.

SanR&N No 0300-11 - "Sanitary rules and regulations for organizing the collection, inventory, classification, neutralization, storage and disposal of industrial waste in the conditions of Uzbekistan" describes the procedure for selecting a method of neutralization and disposal of industrial waste (including toxic), as well as sanitary rules for the collection, transportation and disposal of asbestos-containing waste.

#### 12.1.1.1 Waste Management at Airports

Airport Planning Manual (Land Use and Environmental Management)" dated 28.04.2023[53]
Waste management at airports in Uzbekistan is regulated in accordance with the Sanitary Norms and Rules described above, as well as in accordance with the Aviation Rules and Instructions approved by the Civil Aviation Agency, described in this manual.

According to the Airport Planning Manual, waste management activities at airports are subject to local regulations and are usually the responsibility of a contractor. In general, good practice for any business entity is the four generally accepted rules - reduce, reuse, recycle and recover.

Airport waste can be divided into nine general categories: 1) Municipal Solid Waste (MSW); 2) Construction and Demolition Debris; 3) Green Waste (generated, for example, from landscaping activities); 4) Food Waste (domestic); 5) Aircraft Generated Waste (i.e. waste recovered from aircraft); 6) Aircraft Lavatory Waste; 7) Spill and Clean-up Waste; 8) Hazardous Materials; 9) International Catering Waste.

A waste management programme should include three aspects: planning, procedures and special provisions. Planning involves the development of specific plans and programmes of waste management measures. Procedures include specific measures to improve waste management efficiency (e.g. waste separation, reuse and recycling of airport and aircraft waste, composting of organic waste). Special provisions may be required for hazardous waste management. These provisions may include:

- installation of perimeter fencing;
- installation of warning systems on gates and fencing;
- provision of a vehicle wash area;
- provision of a dedicated building or storage shed for storage of materials;
- application of fire protection measures such as fire alarms and gas detectors;
- installation of ventilation systems, non-sparking electrical appliances and fire extinguishers;
- specialized training of staff;

[52] LD50 – The amount of a chemical that is lethal to one-half (50%) of the experimental animals exposed to it. https://ec.europa.eu/health/scientific_committees/opinions_layman/en/tooth-whiteners/glossary/jkl/ld50.htm

[53] https://www.uzcaa.uz/ru/acts

- implementation of a wildlife hazard prevention programme, particularly with regard to waste storage areas and other waste management facilities.

### 12.1.2 Lender Requirements

IFC Performance Standards and WBG EHS Guidelines

*Solid Waste*

Section 1.6 of "the IFC/WBG General EHS Guidelines" is entitled Waste Management and is applicable to all projects that generate, store or handle any quantity of waste; whilst Section 1.5 of the IFC EHS Guidelines covers Hazardous Materials Management. The waste management guidelines state that facilities that generate and store wastes should practice the following:

- Establish waste management priorities at the outset of activities;
- Identify EHS risks and impacts and consider waste generation and its consequences;
- Establish a waste management hierarchy that considers prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes;
- Avoid or minimize the generation of waste materials, as far as practicable;
- Identify where waste generation cannot be avoided but can be minimized or where opportunities exist for, recovering and reusing waste; and
- Where waste cannot be recovered or reused, identify means of treating, destroying, and disposing of it in an environmentally sound manner.

The IFC/WBG EHS Guidelines for Airports (2007) recommends the following waste management strategies:

- Instituting a solid waste recycling program, depending on the existence of local facilities, that should involve placing labelled waste containers in passenger terminals for metals, glass, paper, and plastics. Food establishments should segregate compostable and other food waste for recycling as agricultural fertilizer and animal feed;
- Airline operators and airplane cleaning contractors should be encouraged to segregate waste in the airplane by separating the collection of newspapers / papers, plastic, metallic containers, and used pillows. Used pillows should be recycled in furniture manufacturing or as insulation;
- Food catering waste from aircraft should be managed according to applicable local regulations intended to protect human and animal health. Possible local requirements may include rendering, incineration, or landfilling of food catering waste and mixed waste containing catering waste.

*Wastewater*

The World Bank Group General EHS Guidelines (2007) establish general requirements for direct or indirect discharges of process wastewater, wastewater from utility operations or storm water to the environment.

*'Projects with the potential to generate process wastewater, sanitary (domestic) sewage, or storm water should incorporate the necessary precautions to avoid, minimize, and control adverse impacts to human health, safety, or the environment'.*

However, wastewater effluent pollutant limits are only established for sanitary wastewater for discharge to the sanitary sewer systems. Water effluent guidelines in industrial wastewater for discharge to surface waters are established for the power sector in World Bank EHS

The World Bank Group General EHS Guidelines (2007) (ref. Table 1.3.1 of IFC EHS Guidelines), provides indicative values for treated sanitary wastewater effluent.

According to the EBRD's ESR 3, the client will avoid or minimise the generation of waste materials and reduce their impacts as far as practicable. Where waste generation cannot be avoided but has been minimised, the client will reuse, recycle or recover waste, or use it as a source of energy in a manner that is safe for human health and the environment. Where waste cannot be recycled, reused or recovered, the client will need to treat and/or dispose of it in an environmentally sound and safe manner that includes the appropriate control of emissions and residues resulting from handling and processing the waste material and, where relevant, is in accordance with European Union (EU) substantive environmental standards or equivalent GIP standards.

### 12.1.3 Aviation Sector Requirements - ICAO

The ICAO has developed environmental protection policies (Doc 9501 & Doc 9988) that sets a framework for waste and wastewater management at airports. While the ICAO does not enforce waste and waste management procedures, the organisation promotes good practices from segregation, handling, recycling, to disposal of the waste. Such details can be found in the ICAO's Eco-Airport toolkit Waste Management at Airports. The ICAO further emphasizes the need to align with the Basel Convention when it comes to the management of hazardous waste.

## 12.2 Scoping

Information on the current waste management facilities and associated services was collected and used to assess Project's capacity to manage generated waste streams. The scope of assessment is as follows:

- Identify suitable and permitted facilities for handling the anticipated waste and wastewater volumes;
- Evaluate the capacity and environmental compliance of local infrastructure and service providers;
- Inform the development of a waste management plan that aligns with national regulatory requirements and lenders' expectations, which at the end to minimise potential environmental and public health impacts associated with improper waste handling.

## 12.3 Sensitive Receptors

Interfaces between planned project activities and relevant valued receptors represent potential project impacts. The following table provides a descriptive list of direct and indirect receptors pertaining to waste and wastewater management within the Project's areas of influence.

**Table 12-1 Waste Receptors**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Waste facilities and environmental receptors | **Medium** | it is known that there are waste management facilities in the region, however the capacity of these facilities to receive Project waste is not clear. A Medium sensitivity in terms of potential strain on this waste infrastructure is therefore assigned as a conservative approach. |

## 12.4 Local Conditions and Observations

### 12.4.1 Waste Management within the Project Area

Based on publicly available information and third-party sources, several existing waste and wastewater management facilities are located within the wider Project area and the Tashkent region. These facilities provide established infrastructure for the treatment and disposal of municipal wastewater and solid waste and represent potential options for managing Project-generated waste streams, subject to regulatory approvals and capacity confirmation.

#### 12.4.1.1 Wastewater Treatment Facilities

The following municipal wastewater treatment plants (WWTPs) are located within the broader area:

- Nurafshon WWTP
- Yangiyul WWTP

In addition, a new WWTP is reportedly planned in the Surum area and is expected to become operational in the future. However, at the time of preparation of this ESIA, the commissioning date and operational status of this facility have not been formally confirmed. These facilities serve surrounding urban and semi-urban settlements and form part of the regional wastewater management network.

#### 12.4.1.2 Solid Waste Disposal Facilities

For municipal and non-hazardous solid waste disposal, the following landfill facilities are present in the region:

- Yangiyul Landfill
- Akhangaron

In addition to these facilities, several licensed waste management companies operate within Tashkent and the surrounding region, providing collection, transport, recycling, treatment, and disposal services for municipal, industrial, and selected hazardous waste streams. The typical waste handling procedures followed in the Tashkent region for which the licensed waste service providers and facilities are available are listed in Table 12-2.

**Akhangaron Landfill**[54]

The Akhangaron Landfill is located approximately 35 km south of central Tashkent within the Akhangaron District of Tashkent Province. The facility has been operational since 1967 and receives municipal waste from Tashkent City and surrounding areas. The site has benefited from improvements implemented under the Solid Waste Management Improvement Program (SWMIP).

As the original landfill reached its design capacity, the Government of Uzbekistan approved the development of a new landfill facility immediately adjacent to the existing site. A 30-hectare area was allocated, including approximately 25 hectares for landfill operations and 5 hectares for supporting infrastructure. The new facility has been designed in accordance with internationally recognised environmental standards while also complying with applicable national environmental and construction requirements.

[54] https://www.adb.org/sites/default/files/project-documents/45366/45366-004-ecar-en.pdf

**Table 12-2 Waste Management Practices in Tashkent Area**

| Waste Type | Description | Available Waste Management Infrastructure / Licensed Operators |
|---|---|---|
| Hazardous Waste (Oil-Contaminated and Chemical Waste) | Waste materials contaminated with hazardous substances, including used oils (diesel generator oil, compressor oil, transformer oil), oily rags, oil filters, contaminated containers (oil/paint drums), workshop waste, and sludge from storage tanks. | Accepted for recycling or treatment by licensed hazardous waste management and oil recovery companies operating in the Tashkent region. Metal drums with limited contamination may be accepted by licensed metal recovery facilities. |
| Construction and Demolition (C&D) Waste | Concrete rubble, bricks, scrap metal, wood, and other inert or non-hazardous construction waste generated during demolition and construction works. | Permitted for disposal at designated municipal solid waste landfills. Recyclable metals are accepted by licensed ferrous and non-ferrous metal recycling facilities. |
| Excavated soil | Topsoil and subsoil generated during earthworks. | Not classified as waste if reused. Suitable material can be reused on-site for landscaping, backfilling, and levelling. Excess material to be disposed of at locations approved by local authorities |
| Non-Hazardous General Waste | Paper, cardboard, plastics, packaging materials, and other non-hazardous refuse generated during construction activities (excluding C&D waste). | Accepted by licensed recycling companies and municipal waste operators within the Tashkent region. |
| Municipal Solid Waste (MSW) | Domestic-type waste generated from worker accommodations, site offices, and operational facilities (food waste, paper, plastics, etc.). | Collected and transported by the regional municipal waste operator to designated municipal landfills. Recyclable fractions may be directed to licensed recycling companies. |
| Packaging Waste | Cardboard boxes, plastic wrapping, polyethylene film, wooden crates, labels, textiles, rubber, and glass associated with delivered materials | Recyclable materials are accepted by licensed recycling companies specialising in paper/cardboard, plastics, wood, rubber, textiles, and glass within the region. |
| Medical Waste | Minor quantities of medical waste generated from first aid stations (e.g., used syringes, dressings, medical consumables). | Collected and disposed of by licensed medical waste management companies. |
| Wastewater | Process wastewater (e.g., concrete batching wash water), site runoff, dewatering discharge, and domestic wastewater from worker facilities. | Process wastewater to be settled and reused where feasible. Domestic wastewater transported to municipal wastewater treatment plants by licensed operators. |

## 12.5 Impacts, Mitigation, Management & Residual Impact

### 12.5.1 Construction Phase

Planned construction activities will generate various amounts of hazardous and non-hazardous solid and liquid waste. Further, oil spills, fire outbreak and floodwater/ fire suppression wash-down contamination represent contingent sources of construction-phase waste. Potential impacts from generation of construction wastes are discussed in following sections.

#### 12.5.1.1 Construction Waste Streams

Construction activities will include site preparation, civil works, electrical and mechanical installation, delivery and storage of construction materials, and operation of worker accommodation facilities. These activities are expected to generate various waste streams, including construction and demolition (C&D) waste, general domestic waste, hazardous waste, and wastewater. Waste generated during the construction phase may occur in both solid and liquid forms.

The table below presents a framework for classifying construction-phase waste according to its source and its potential level of hazard to human health and ecological receptors.

**Table 12-3 Classification of Construction Waste Streams**

| Waste Category | Origin | Description |
|---|---|---|
| Non-hazardous construction waste | This waste stream typically originates from site preparation, excavation, civil works, and mechanical and electrical installations. | This waste category generally poses minor risks to the environment and human health, as it is not characterized by the distinct properties of hazardous waste (presented below). It can thus be disposed of at regular municipal facilities after waste minimisation options are exhausted and before obtaining approval.<br><br>Solid non-hazardous construction waste will include:<br>• Discarded aggregates (concrete, asphalt, excavation spoils etc);<br>• Scrap metals;<br>• Glass, plastic, rubber, cardboard and wooden refuse from construction materials and packaging;<br>• Organic waste from vegetation clearance. |
| Non-hazardous domestic waste | On construction projects, domestic waste is generated by the operation of labour camps, offices and welfare facilities. | This waste poses negligible to minor risks to the environment and primarily comprise of spent or processed domestic type materials.<br><br>Solid non-hazardous domestic waste will include:<br>• Discarded foodstuffs;<br>• Discarded clothing articles;<br>• Discarded sanitary materials and household items;<br>• Waste paper from deskwork and packaging;<br>• Liquid non-hazardous domestic waste will include grey-water and black-water. |
| Hazardous waste | On construction projects, hazardous waste typically arises | This waste category poses risks that may be detrimental to human health and/or the environment |

| Waste Category | Origin | Description |
|---|---|---|
| | from spills or leaks of hazardous substances, the use and storage of concentrated chemical products, deterioration or replacement of equipment components containing hazardous materials, and the clean-up of equipment or surfaces contaminated by such substances. | and may result in acute, chronic, or irreversible health effects, including, in severe cases, increased mortality.<br><br>Waste is classified as hazardous if it exhibits one or more hazardous characteristics or contains substances that are toxic, explosive, flammable, combustible, oxidising, corrosive, reactive, radioactive, or infectious.<br>Solid hazardous construction and domestic waste will include:<br>• Used batteries;<br>• Discarded chemical containers;<br>• Used oil filters;<br>• Contaminated clean-up materials;<br>• Soil contaminated with spilled chemicals;<br>• Spent machinery/ equipment components containing or contaminated by hazardous materials;<br>• Medical waste;<br><br>Liquid hazardous construction and domestic waste will include:<br>• Used oils including lubricants and hydraulic fluids;<br>• Concrete wash-out water;<br>• Wastewater from vehicle wash bays;<br>• Contaminated storm-water and/or floodwater. |

The Project's construction phase is expected to last for a total period of 48 months and employ a maximum of 5,000 people (2,700 for landside + 2,300 for airside) at its peak. At the time of preparing this ESIA, estimates of waste quantities are not available, as final design specifications, construction methodologies, material take-offs, and contractor procurement strategies have not yet been defined. Waste generation rates during construction will depend on the final design configuration, selected materials, construction sequencing, workforce numbers, and site-specific management practices.

As the Project progresses to the detailed design and procurement stage, the EPC Contractor will be required to prepare a comprehensive Waste Management Plan (WMP). The WMP will include: (i) quantified estimates of anticipated waste streams; (ii) waste classification in accordance with national regulatory requirements; (iii) procedures for segregation, storage, reuse, recycling, transport, and disposal; (iv) identification of licensed waste management facilities; and (v) monitoring and reporting mechanisms. This approach will ensure that waste management is planned based on confirmed construction methodologies and aligned with regulatory requirements and international good practice.

#### 12.5.1.2 Impacts due to Inadequate Management of Wastes

Potential impact from inadequate management of construction waste can be divided into the following:

- Strain on existing municipal waste management facilities due to introduction of high volumes of construction waste from the Project.

- Contamination of soil and groundwater;
- Direct or indirect pollution of surface water (run-off and receiving water bodies); and
- Health issues and nuisance to nearby communities.

For the analysis, impact assessment, mitigation, and monitoring requirements related to impacts on surface water resources, and soil and groundwater, please refer to chapters 11 and 10, respectively.

**Strain On Existing Municipal Waste Management Facilities**

The construction phase will generate substantial quantities of construction, domestic, and hazardous waste over a concentrated timeframe. This could place additional demand on existing municipal landfills, recycling facilities, hazardous waste treatment operators, and wastewater treatment plants in the region.

Without proper coordination, large waste volumes could contribute to temporary capacity constraints or operational strain at receiving facilities. However, with advance contractual arrangements, phased waste removal scheduling, segregation and maximisation of recycling, and coordination with licensed operators, the residual impact is expected to be minor and manageable.

As detailed information regarding the available capacity and operational margins of these facilities is not fully confirmed at the time of this ESIA, the sensitivity of the receiving waste management infrastructure is conservatively assessed as medium.

Based on the available information, regional waste management infrastructure is considered available to support the Project during both construction and operation. Nevertheless, the final waste management facilities and contractors have not yet been selected. Prior to engagement, the Project will undertake due diligence of proposed waste management facilities and service providers to confirm regulatory compliance, available capacity, and alignment with Good International Industry Practice (GIIP). Where deficiencies are identified, alternative licensed facilities or additional management measures will be implemented.

Overall, the presence of established wastewater treatment plants, landfill facilities, and licensed waste operators indicates that regional waste management infrastructure is available to support the Project during construction, subject to capacity assessments and contractual arrangements.

**Health and Social Impacts from Inadequate Waste Management**

Improper management of construction waste and sewage can result in significant environmental and social impacts. If waste is not segregated, stored, and disposed of correctly, it can lead to contamination of soil and surface water through leachate or accidental spills, posing risks to local ecosystems and potentially entering agricultural lands and water sources used by communities. Hazardous wastes, if mishandled, can cause acute or chronic health effects to workers, nearby residents, and wildlife due to exposure to toxic substances or pathogens.

Inadequate sewage handling, such as failure to properly maintain septic tanks or holding facilities, may result in overflow or leakage, causing unpleasant odours, contamination of nearby drainage channels, and potential outbreaks of waterborne diseases. These conditions can degrade local living conditions and lead to complaints or opposition from communities, potentially delaying project activities and harming the project's social license to operate.

Furthermore, the accumulation of unmanaged solid waste on-site can attract vermin and insects, creating additional health hazards and increasing nuisance for workers and local populations.

Therefore, effective waste and sewage management are critical not only to protect environmental receptors but also to maintain good relations with affected communities and safeguard worker health and safety. Adherence to GIIP, including regular monitoring, worker training, and community engagement, is essential to mitigate these risks and ensure that the project's waste handling does not adversely impact human health or the environment.

#### 12.5.1.3 Control Measures in Waste Handling

The EPC Contractor will be responsible for establishing appropriate waste management arrangements for the Project's construction phase. This will include coordination and formal agreements with licensed local waste management facilities for the collection, transport, treatment, recycling, and disposal of waste generated during construction activities.

The table below provides an overview of the proposed management approach for the different waste streams expected to be generated during the construction phase to minimise excessive strain on existing waste facilities.

**Table 12-4 Waste Management during Construction**

| Construction Waste Category | Management Mode |
|---|---|
| Non-hazardous construction waste | Solid waste will be collected and segregated on-site using distributed waste bins and skips, supported by a central waste storage and collection area. Recyclable and non-recyclable fractions will be separated at source to promote material recovery. Waste will be transferred to licensed and municipally approved waste management service providers for recycling or final disposal at designated facilities. |
| Non-hazardous domestic waste | Solid domestic waste generated from worker facilities will be collected and segregated using dedicated waste bins and skips, with temporary storage at a central collection point. Recyclable materials will be separated where practicable. Waste will be handed over to licensed and municipally approved waste management service providers.<br><br>Sewage generated during construction will be collected in sealed holding tanks and periodically removed by an authorised sewage management company for treatment and disposal at a public WWTP. |
| Hazardous waste | Hazardous solid waste will be collected in clearly labelled, dedicated containers and stored in controlled areas with impermeable surfaces, secondary containment (bunding), and weather protection. These wastes will be transferred only to licensed and municipally approved hazardous waste management service providers. |

The EPC Contractor will prepare and implement a WMP in accordance with GIIP. The WMP will incorporate the principle of Duty of Care, including verification that all third-party waste transporters and disposal or recycling facilities are appropriately licensed and operate in compliance with applicable environmental requirements. Where necessary, audits or due diligence checks of receiving waste facilities will be undertaken to confirm compliance.

This approach is consistent with the forthcoming national resolution, effective 1 June 2026[55], which requires that waste generated during the construction, reconstruction, or demolition of buildings, roads, and engineering networks be transferred under formal contract only to enterprises or landfills authorised to process such waste. The resolution also mandates proper

[55] https://darakchi.uz/en/208828

accounting of waste volumes, identification of designated collection points, and implementation of measures to control dust generation and odour.

In the absence of mitigation, the impact associated with potential strain on existing waste management facilities is assessed as negative, direct, and of moderate magnitude. With implementation of the mitigation measures outlined in the following table, including advance contractual arrangements, waste minimisation, segregation, recycling, and facility due diligence, the residual impact is expected to be reduced to minor significance.

### 12.5.2 Impact Assessment Summary – Waste and Wastewater Management during Construction

A summary of potential impacts on identified receptors as a result of Project wastes during construction are presented in following table including suggested mitigation measures and residual impacts after implementation of mitigation measures.

**Table 12-5 Impact Assessment Summary – Waste and Wastewater Management during Construction**

| Potential Impacts | Magnitude of impact | Receptor | Sensitivity | Impact Significance | Residual impact |
|---|---|---|---|---|---|
| Strain on existing municipal waste management facilities due to high volumes of non-hazardous construction waste | Minor | Public waste management facilities within Tashkent Region. | Medium | Minor | Negligible |
| Strain on existing municipal waste management facilities due to high volumes of non-hazardous domestic waste | Minor | Public waste management facilities within Tashkent Region. | Medium | Minor | Negligible |
| Strain on existing municipal waste management facilities due to high volumes of hazardous waste | Moderate | Public waste management facilities within Tashkent Region. | Medium | Moderate | Minor |

Mitigation to avoid burden on existing waste infrastructure

- The EPC Contractor will coordinate with the local government authorities (e.g. municipalities) within Tashkent region with regards to licensed and appropriate waste management facilities fit to accommodate project waste. Further, relevant utilities and communities will be consulted to establish whether further mitigation plans will be required to address possible disruption of existing infrastructure operations and utility services.
- Prior to commencement of construction, the EPC contractor will confirm available capacity at designated landfills, recycling centres, hazardous waste facilities, and WWTPs. Execute formal contracts specifying permitted waste types, forecast volumes, and delivery schedules to prevent overloading of receiving facilities.
- A construction stage Waste Management Plan will be prepared and implemented following GIIP measures.
- The Project will implement a staggered waste transport schedule aligned with construction phases to avoid large, short-term surges in waste delivery.
- The EPC Contractor will ensure that all waste consignments requiring off-site treatment and/or disposal will be transferred only to licensed waste management facilities allocated by relevant authorities.
- Depending on the party responsible for waste transit, the EPC Contractor will organize notification and prompt maintenance in the event of damage to any third-party utilities, in consultation with the service operator or utility owner. A schedule for repair of any damaged infrastructure will be agreed upon with the service operator or utility owner, and communicated to affected communities, where necessary.
- Material procurement and storage practices will be optimised to reduce off-cuts, spoilage, and packaging waste. Apply accurate material take-offs and adopt modular construction methods where feasible to minimise surplus materials.
- On-site reuse of excavated soil, inert construction materials, and suitable aggregates for backfilling and landscaping will be maximised. Dedicated segregation areas will be set up to increase recovery rates of recyclable materials (metal, wood, plastics, cardboard).

### 12.5.3 Operational Phase

Planned operational activities and contingencies will generate various amounts of hazardous and non-hazardous solid and liquid waste. Further, oil spills, fire outbreak and floodwater/ fire suppression wash-down contamination represent contingent sources of operations-phase waste. Table 12-6 outlines the direct potential environmental aspects, impacts and receptors with regards to waste and wastewater management, during the Project's operation stage.

**Table 12-6 Potential Impacts on Operational Phase**

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| Terminal operations (passenger & cargo) | Municipal solid waste (MSW) generation | Increased volume of Municipal Solid Waste (MSW) causing pressure on local waste systems – within terminal and surrounding waste collection zones | Local waste management facilities, municipality, local residents |
| Aircraft and airside operations | Generation of hazardous and non-hazardous waste | Increased volume of MSW and hazardous wastes causing pressure on local waste systems – within terminal and surrounding waste collection zones | Local waste management facilities, municipality, local residents |
| Maintenance activities (MRO facilities), Ground service equipment (GSE) and vehicle maintenance | | | |
| Waste from cargo operations (e.g. packaging) | Packaging waste (plastics, wood, metals) | Accumulation of waste streams causing waste management and visual impacts, affecting air cargo terminal and logistic zones | Local waste management facilities, recycling plants, landfill operators |
| Food & beverage outlets | Organic and packaging waste | Odour, pest attraction, and increased food waste – inside terminals and loading docks | Public health, passengers, operational staff (e.g. janitors) |
| Terminal restrooms and passenger facilities | Generation of sanitary wastewater | Increased load on local sewage treatment systems; risk of untreated discharges in case of system failure | Municipal sewage network, local treatment plants |
| Food preparation areas (restaurants, lounges) | Generation of grease-laden and organic wastewater | Blockages in drainage systems, foul odours, pollution if not pre-treated | Existing sewer infrastructure, treatment plants |
| Aircraft cleaning and lavatory servicing | Chemical and blackwater discharge | Risk of contamination due to chemical cleaners or untreated waste affecting apron and servicing zones | Airport drainage systems |
| Vehicle and equipment washing and de-icing | Generation of hazardous wastewater | Risk of contamination (e.g. heavy metals). Surface water and soil pollution from poorly | Aquatic habitats, water bodies, downstream users |

| Activity | Environmental Aspect | Impacts and Zone of Influence | Potential Receptors |
|---|---|---|---|
| | | managed wash water – GSE and maintenance yards.<br>High biological oxygen demand (BOD) in nearby waters – aprons and runways | of surface water (e.g. Chirchiq river)<br>local treatment facilities |
| Emergency situations (e.g. spill response) | Accidental generation of hazardous waste | Sudden high-risk waste loads requiring immediate response – localized to event sites | Local waste management facilities |

During the operational phase of the airport, significant volumes of both solid and liquid waste will be generated from a range of sources including terminal operations, aircraft handling, maintenance activities, commercial concessions, and passenger services. Effective management of these waste streams is essential to minimise environmental impacts and safeguard human health.

The types of waste generated align with those identified in the ICAO “Waste Management at Airport” guidelines and include MSW, C&D waste, waste from aircraft flights (deplaned waste), compostable organic waste, hazardous and industrial waste, as well as lavatory waste (grey and black water). Each waste type presents unique management challenges and risks.

#### 12.5.3.1 Municipal Solid Waste (MSW)

MSW at the airport will predominantly come from terminal public areas, retail concessions, airline offices, and cargo operations. This waste includes everyday items such as plastics, paper, cardboard, glass bottles, and packaging materials. The generation of increased volumes of MSW will place additional pressure on local waste management systems, including waste collection services and landfill capacity. This could affect local residents and municipal waste infrastructure within and around the terminal zone.

#### 12.5.3.2 Hazardous and Industrial Waste

Waste generated from aircraft and ground vehicle washing, fuelling, maintenance, de-icing, and repair operations includes oils, solvents, chemical residues, and contaminated materials. These wastes pose significant environmental and human health risks if not handled properly. Uzbekistan regulations (e.g., SanN&RRUz N 0127-02) strictly govern the classification, storage, and disposal of such wastes.

#### 12.5.3.3 Wastewater and Sanitary Waste

Operational activities will also generate sanitary wastewater and grease-laden effluents, primarily from terminal restrooms, food preparation areas, and aircraft lavatory servicing. Increased load on municipal sewage treatment plants may arise, with potential risks of untreated or poorly treated discharges during system failures. Blockages and foul odours from grease and organic waste may also affect existing sewer infrastructure, impacting local public health and receiving water bodies, including the Chirchiq River.

It should be noted that the operational wastewater will primarily be treated within the proposed on-site WWTP, with only limited volumes requiring off-site management where necessary.

#### 12.5.3.4 Organic and Packaging Waste from Food Services

Food and beverage outlets will generate organic waste and packaging materials. Without proper segregation and timely removal, this can lead to odour issues, pest infestations, and increased public health risks within terminals and loading areas.

#### 12.5.3.5 Packaging Waste from Cargo Operations

Packaging materials such as plastics, wood, and metals from cargo activities can accumulate and create waste management and visual impacts, particularly within air cargo terminals and logistic zones, necessitating proper collection and recycling to avoid environmental degradation.

#### 12.5.3.6 Quarantine Waste

Special consideration must be given to quarantined waste, which may originate from international flights and carry risks of introducing pests or diseases. This waste requires separate handling, often involving on-site incineration or secure packaging and disposal.

### 12.5.4 Impacts Assessment Summary – Waste and Wastewater Management during Operation

The presence of established wastewater treatment plants, landfill facilities, and licensed waste operators indicates that regional waste management infrastructure is available to support the Project during operation, subject to capacity assessments and contractual arrangements.

Overall, the operational phase will generate a mix of waste types requiring coordinated management strategies to prevent environmental contamination, health hazards, and nuisance issues. Without mitigation, the cumulative effect of increased waste volumes and hazardous materials may impose moderate adverse pressure on local waste management facilities and environmental receptors, including surface waters and nearby communities.

A summary of potential impacts on identified receptors as a result of Project wastes during operation are presented in following table including suggested mitigation measures and residual impacts after implementation of mitigations measures.

**Table 12-7 Impact Assessment Summary – Waste and Wastewater Management during Operation**

| Potential Impacts | Magnitude of impact | Receptor | Sensitivity | Impact Significance | Residual impact |
|---|---|---|---|---|---|
| Strain on municipal waste management facilities due to generation of non-hazardous operational waste (MSW, food waste, packaging) | Moderate | Public waste management facilities within Tashkent City and Tashkent Region | Medium | Moderate | Minor |
| Strain on industrial and hazardous waste management facilities due to generation of process and hazardous wastes (e.g., oils, solvents, chemical residues, lavatory waste) | Moderate | Licensed hazardous waste treatment and disposal facilities | Medium | Moderate | Minor |

Mitigation measures to address strain on waste infrastructure

- The Project Company will coordinate with local government authorities, utilities, and licensed waste management facilities in Tashkent City and Region to ensure adequate capacity and proper handling of all waste streams.
- Consultations will be held with relevant utilities and communities to address potential disruption of existing infrastructure or services.
- All waste consignments requiring off-site treatment or disposal, including hazardous and non-hazardous operational wastes, will be transferred only to licensed and authorized facilities allocated by the authorities.
- Waste transfer procedures will include notification and prompt repair of any third-party utilities impacted during waste transport. Schedules for repair will be agreed upon with utility operators and communicated to affected communities where necessary.
- Wastewater treatment plants will be operated according to manufacturer instructions and relevant permits and discharges will comply with national regulations and Project environmental standards.
- Solid residues from wastewater treatment will be managed according to the Project Waste Management Plan and national laws.
- The Project Company will prepare a Water and Waste Management Plan detailing:
  - Identification of all wastewater sources, their potential composition, treatment techniques, and discharge points.
  - Water conservation measures to minimize demand and optimize efficiency.
  - Spill and emergency response procedures for accidental releases, overflows, or odour events.
- Proper segregation, storage, and handling of hazardous and non-hazardous wastes will be carried out to prevent contamination, odour issues, pest attraction, and risks to human health or the environment.
- Management of lavatory and chemical wastes from aircraft and terminals will be carried out to avoid accidental discharges to drainage, surface water, or soil.

### 12.5.5 Circular Economy and Resource Efficiency

The Airport Operator will apply the principles of resource efficiency and circular economy to operational waste management, with the objective of minimising waste generation and maximising the recovery and beneficial reuse of materials. The Operational Waste Management Plan will prioritise waste prevention, reuse, recycling and recovery in accordance with the waste hierarchy, with disposal to landfill being the least preferred option.

To support implementation of these principles, waste generated during airport operations will, where practicable, be segregated at source to facilitate recycling and recovery. Appropriate waste collection infrastructure will be provided throughout the airport, including separate collection systems for key recyclable waste streams such as paper and cardboard, plastics, metals, glass and other suitable materials. Opportunities to minimise single-use materials and increase the procurement of reusable and recyclable products will also be considered as part of the Airport's operational resource efficiency programme.

The Airport Operator will establish waste performance indicators to monitor the effectiveness of the Operational Waste Management Plan and identify opportunities for continual improvement. These indicators are expected to include, as appropriate, total municipal solid waste generated, waste generated per passenger, quantities of waste reused, recycled and recovered, recycling rates for key waste streams, and the proportion of waste disposed of to landfill. Waste management performance will be periodically reviewed, and improvement measures implemented where appropriate to increase resource recovery and support circular economy objectives.

The detailed approach to implementing resource efficiency and circular economy principles during airport operations will be set out in the Operational Waste Management Plan (OWMP), which will be prepared prior to commencement of operations. The OWMP will establish appropriate waste management objectives, procedures and performance indicators to support continual improvement in waste minimisation, reuse, recycling and recovery. As a minimum, the Airport Operator will monitor and periodically review the key performance indicators presented in Table 12-8 to assess the effectiveness of the waste management programme and identify opportunities to further improve resource efficiency.

**Table 12-8 Airport Waste Management Performance Indicators Metrics**

| Waste Indicator | Purpose |
|---|---|
| Total MSW generated (t/year) | Overall waste generation |
| MSW generated per passenger (kg/passenger) | Resource efficiency |
| Recycling rate (%) | Circular economy performance |
| Recovery rate (%) | Resource recovery |
| Landfill diversion rate (%) | Reduction in disposal |
| Food waste diverted from landfill (%) | Optional if airport has catering |
| Total MSW generated (t/year) | Overall waste generation |
| Source segregation rate (%) | Source segregation rate (%) |

## 12.6 Monitoring

An overview of essential monitoring requirements to track the effectiveness of recommended mitigation measures for waste management are tabulated below. The final monitoring methodology with specific monitoring details (i.e. locations, frequency, durations, parameters etc.) will be developed in the specific 'Environmental and Social Management Plan'.

**Table 12-9 Waste Management Monitoring – Construction and Operation**

| Monitoring | Parameter | Frequency & Durations | Monitoring Location |
|---|---|---|---|
| Strain on resident public waste management facilities during construction | Number of grievances from waste management service providers and/ or affected communities and commercial/ industrial establishments with regards to disruption of waste management services | Monthly | Public waste management utility offices |
| | Number of waste consignments exported out of the project area without regulatory permits. | Monthly | Project offices |
| Strain on resident public waste management facilities during operations | Number of grievances from waste management service providers and/ or affected communities and commercial/ industrial establishments with regards to disruption of waste management services | Monthly | Public waste management utility offices |
| Inspect and monitor proper handling and storing of waste materials | Check storage areas containment and control procedures as per CESMP/OESMP | Daily | Storage areas at the site |
| | Number of waste consignments exported out of the project area without regulatory permits. | Monthly | Plant offices |
| Inspect and monitor third party waste contractors and disposal facilities | Ensuring engaged contractors, their vehicles and waste management facilities have applicable registrations/licenses at time of procurement | At procurement and annually thereafter | Contractors, transport vehicles and waste management facilities |
| Waste Transfers | Record keeping of waste transfer notes | On-going | As waste is transferred during construction and operational phases. |
| Wastewater | Airport operating company (i.e., TAA) will maintain records of all wastewater analysis for inspection of compliance during operational audits. | On-going | Wastewater analysis records. |
| | Continuous monitoring of selected in-situ parameters, including pH, turbidity, conductivity and dissolved oxygen. Monthly monitoring of ex-situ parameters | Continuous monitoring in situ. | Discharge to canal or point of re-use |

| Monitoring | Parameter | Frequency & Durations | Monitoring Location |
|---|---|---|---|
| | during commissioning and quarterly monitoring during operations will be conducted to ensure the quality of all treated wastewater is in compliance with established standards for reuse or discharge to the canal | Ex-situ, quarterly during normal operations. | |

# 13.0 Landscape and Visual

## 13.1 Applicable Requirements and Standards

### 13.1.1 National Regulations

Specific legislation in regard to landscape and visual impacts is not known to exist in Uzbekistan and there are no specific requirements for this linked to lender guidelines. However, any Project activities/design that could impact cultural resources may need to be assessed in the context of that cultural resource.

### 13.1.2 Lender Requirements

The IFC Performance Standards require that landscape and visual impacts be managed to protect community welfare and cultural heritage. Under IFC PS1, there is an expectation that the project identifies risks to the "aesthetic value" of the area. With regard to 'Physical Environment', IFC PS8 (Cultural Heritage) requires the protection of "Cultural Landscapes," ensuring that airport infrastructure (terminals, towers) does not adversely affect the visual integrity of significant historical or traditional sites.

Equator Principles IV establishes that impacts on the visual environment and local landscape character should be avoided where possible. EP IV recognizes that EAFIs (Equator Principle Financial Institutions) must ensure the project is socially acceptable, which includes:

An assessment of Visual Amenity under EP2 to identify how the project alters the view for "Sensitive Receptors" (e.g., local communities and tourists).

Consideration of Light Pollution and Glare as part of the Environmental and Social Assessment, ensuring that 24-hour airport lighting and reflective surfaces (glass facades/solar arrays) do not create a nuisance or safety hazard for residents or pilots.

### 13.1.3 Good Practice Guidelines

The Landscape and Visual Impact Assessment methodology will be guided by the current good practice, guidelines and guidance from the following sources:

- ‘Guidelines for Landscape and Visual Impact Assessment’, Landscape Institute (LI) and Institute of Environmental Management and Assessment (IEMA), Third Edition, 2013; and
- ‘An Approach to Landscape Character Assessment’, Natural England, 2018.

## 13.2 Observations and Baseline Conditions

### 13.2.1 Methodology

The landscapes and visual baseline conditions of the study area were established using a combination of desktop study and several site visits. The baseline can be broadly characterised into two sections, landscape character and visual amenity.

#### 13.2.1.1 Landscape Character Survey Methodology

An initial field survey was undertaken in October 2024, with a supplementary survey undertaken in October 2025, and involved the following;

- Taking photographic record of the landscape character of the Project area.
- Conducting drive-through around the study area to consider potential effects on the landscape character of the area.

The landscape of the study area was analysed for features that contribute to the landscape character using a pre-determined checklist of landscape characteristics typical of the region. The fieldwork data was consolidated and reviewed to determine landscape character types for the study area.

#### 13.2.1.2 Visual Amenity Survey Methodology

To evaluate the baseline visual amenity of the receptors in the area, a Geographic Information System (GIS) was used to conduct a series of Viewshed or Zone of Theoretical Visibility (ZTV) Assessments during the desktop study. This approach provides an accurate geographical representation of the surrounding areas where visibility may be impacted by different project components. By generating separate ZTVs for distinct structures based on their respective heights, it is possible to differentiate the extensive visibility of high-profile infrastructure, such as the Air Traffic Control tower and terminal buildings, from the lower-profile components, such as the administrative buildings and various waste handling and collection infrastructure.

The visual amenity as observed from sensitive receptors in the surrounding area was surveyed from five (5) locations, that are representative of the varying views and receptor types likely to be impacted by the Project. Views from a variety of distances, aspects, elevations, and extents were considered. Receptor types include individual properties and settlements; main transport routes.

The baseline visual amenity survey was integrated into the field work during October 2024 and October 2025 and involved the following:

- Visiting locations determined through the desktop study i.e. viewpoints.
- Taking photographs of the project site, as observed from these viewpoints

Photographs at the chosen Viewpoints were taken during periods of good weather and clear atmospheric conditions to capture the optimal scenario of the best visibility towards the Project and surrounding area.

### 13.2.2 Landscape Character Survey

Landscape character could be defined as "a distinct, recognisable and consistent pattern of elements, be it natural (soil, landform) and/or human (for example settlement and development) in the landscape that makes one landscape different from another, rather than better or worse" (Natural England, 2014).

Landscape impacts of a proposed development derive from changes in the physical landscape, caused by the physical presence of a proposed development. This gives rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape.

The landscape baseline survey forms the basis for the identification and description of the changes that may occur to the character of the landscape as a result of the construction and operation of the new Tashkent International Airport. The different elements that contribute to the landscape character within the study area are discussed below.

#### 13.2.2.1 Project Site Land Use and Cover

Based on site observations and the review of satellite imagery, the Project site is characterised predominantly by agricultural land interspersed with irrigation canals used to support crop cultivation. Only limited areas of natural habitat remain within the site. The terrain is generally flat, offering extensive views across the surrounding landscape.

Anthropogenic features within the Project footprint include farmhouses and various agriculture-related structures such as storage barns, irrigation channels, and existing overhead power lines.

A railway line also runs parallel to the site (located to the east, outside the Project site) in a north–south orientation. In the wider area, several agricultural settlements are present, along with associated agro-industrial facilities, such as textile factories.

#### 13.2.2.2 Settlements

Aside from the small settlement located in the northeastern corner of the Project site and a few individual agricultural buildings, no other settlements are present within the Project boundary. To the south of the project boundary lies the small settlement of Yangitosh, situated directly adjacent to the Project area. Further to the north, between two and four kilometres from the Project boundary, are the villages of Tashlakoshakty and Yunuchkala. The village of Zakhar'yevskiy is located to the south, approximately 3.5 kilometres from the Project boundary.

**Figure 13-1 Settlements in the Project Area**

#### 13.2.2.3 Agricultural Lands

The project is located in a largely Agricultural area, with most of the project site and large portions of the surrounding area consisting of agricultural fields or farming related industries and businesses.

**Figure 13-2 Agricultural Land in the Project Area**

#### 13.2.2.4 Landscape Character Areas

Through a combination of desktop study and fieldwork surveys, with topography, vegetation and land use as primary informants, the landscape character and sense of place of the project

site and immediate surrounding area was classified into distinct types of landscape that are relatively homogeneous in character, referred to as Landscape Character Areas (LCAs).

Within the study area, there are five (5) distinct LCAs and these are described below and shown in Figure 13-8.

**LCA 1:** Landscape Character Area 1 is an extensive, predominantly rural agricultural landscape stretching across the Project site and the surrounding area. The terrain is dominated by intensive open crop fields supporting local farming communities and interspersed with small farming settlements and irrigation channels, which are bordered by small pockets of semi-natural shrub vegetation. Topographically, the area is relatively flat, rising gently from west to east with a minor 15-meter elevation gain across the 6-kilometer project footprint, representing a negligible 1:400 gradient ratio (a one-meter vertical rise for every 400 meters of horizontal distance).

While this highly modified landscape exhibits low ecological sensitivity, it provides notable aesthetic value as a functional open, green space outside of the Tashkent urban sprawl. Characterized by wide-open skies and long-distance views, the area establishes a strong sense of place and offers notable visual relief from the nearby city.

**Figure 13-3 Cotton Crop Field and Irrigation Channel**

**LCA 2:** Landscape Character Area 2 is characterized by the small, rural residential communities and built environment within the wider agricultural landscape. Permanent settlements are limited within the project boundary, with only a small cluster of houses in the northeastern corner of the project boundary. However, the surrounding area contains several small, farming-dependent villages. This includes the village of Yangitosh situated immediately south of the project boundary, as well as the villages of Tashlakoshakty, Yunuchkala, and Zakhar'yevskiy, which are distributed between two and four kilometres away.

Physically and culturally, these settlements function as centres of rural community life closely tied to the surrounding farmland, featuring a mix of low-rise residential structures, farming-related infrastructure (animal pens, feed storage barns, etc), and unpaved local roads.

The visual quality of landscapes within LCA2 is considered low, as it is fundamentally defined by standard residential and agricultural structures that lack distinctive, unique, or legally protected heritage features. Furthermore, the presence of arterial roads, utility infrastructure, and various agricultural related activities act as notable detracting elements that reduce the area's baseline aesthetic quality.

**Figure 13-4 Typical Village infrastructure and gravel roads**

**Figure 13-5 Feed storage barns in village/town**

**LCA 3** Landscape Character Area 3 consists of the industrial and large-scale commercial zones located within a select number of the surrounding villages, most prominently in the larger Tashlakoshakty settlement roughly 2.5 kilometres north of the project boundary.

The industrial and commercial facilities are primarily comprised of utilitarian structures such as warehouses, feedlots, engineering companies, and truck or agricultural equipment sales and service centres. These facilities reflect the regional economy, where they predominantly service the surrounding farming communities with agricultural-related services.

Perceptually, this area gives off an industrial atmosphere that detracts from the more natural beauty of the surrounding agricultural community, creating a fractured sense of place focused entirely on production and utility.

**Figure 13-6 Warehouse within the surrounding commercial and industrial centers**

**LCA 4**: Landscape Character Area 4 is comprised of the large natural waterbodies within the surrounding area, most notably the Chirchiq River basin situated to the west of the project site. As a vital waterway in Uzbekistan and a primary lifeblood for the Tashkent region, the river basin forms a distinct, natural feature within a largely human-modified landscape. While the extensive interconnected canal networks that branch off to support the surrounding agricultural lands are man-made and lack distinctive visual characteristics, the primary river corridor stands out as a prominent feature.

Perceptually, the river basin functions as a distinct green corridor that provides a clear visual and ecological break from the surrounding fields and settlements. It introduces a serene, natural environment to the area, offering open views and a sense of tranquillity that contrasts sharply with both the rigid lines of the engineered farmland and the activity of the nearby villages.

**Figure 13-7 Chirchiq River basin**

LCA 5: Undeveloped Landscapes

Mostly undeveloped and semi-natural landscape with shrubs. It is a relatively featureless marked by the presence of pockets of anthropogenic disturbance

The area lacks any recognised features of local or national value and has no distinctive characteristics.

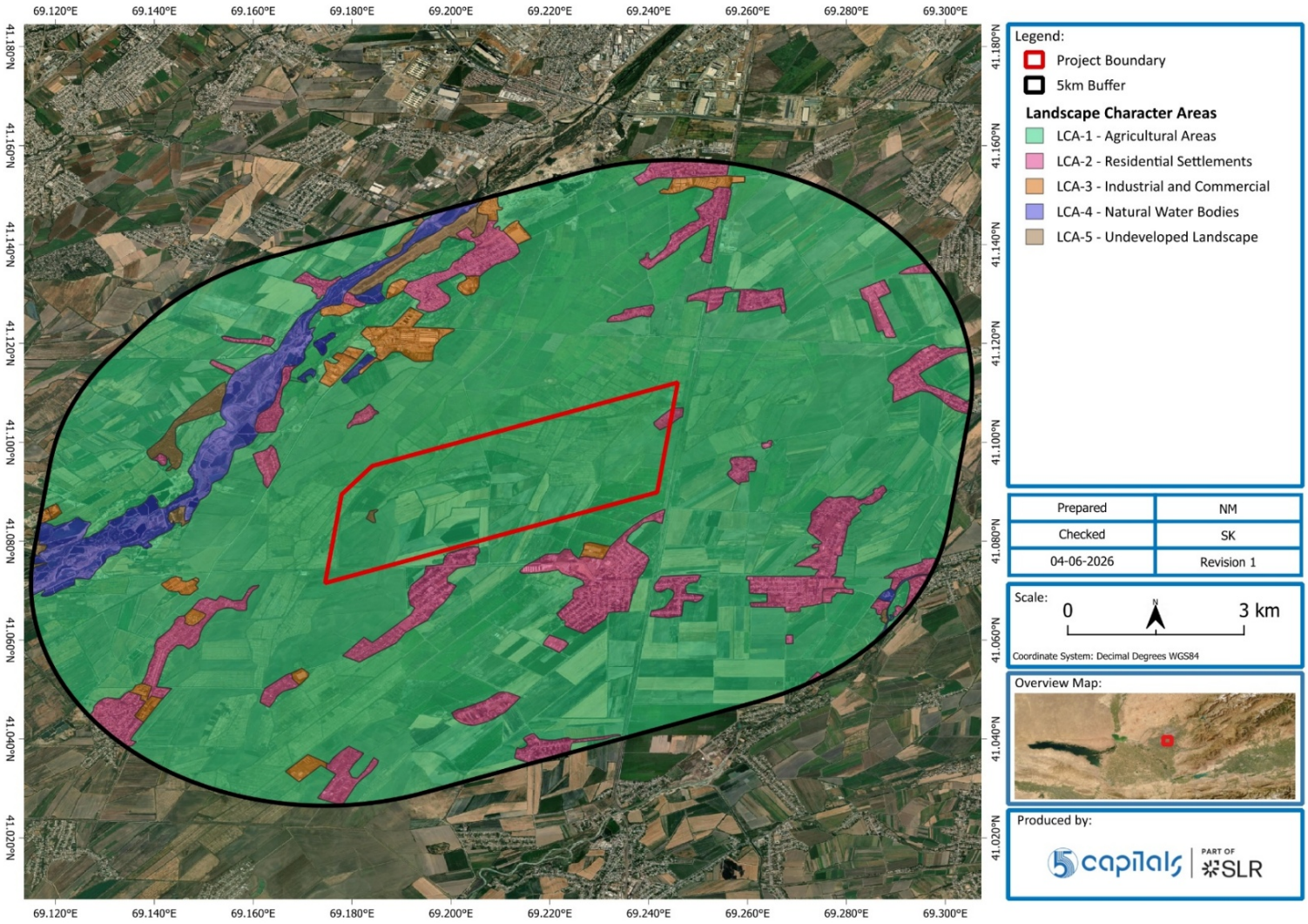



**Figure 13-8 Landscape Character Areas**

### 13.2.3 Visual Amenity Survey

Visual amenity impact is primarily an impact concerned with human interest and can be described as the change to the existing visual environment (i.e., views), caused by the intervention and extent to which that change compromises (negative impact); enhances (positive impact); or maintains the scene's visual quality, as perceived by people visiting, working or living in the area. A visual impact on the area will be caused by all the visible infrastructural components and activities that will take place as part of a project; and all areas where the physical appearance of the landscape will be altered by earthworks and construction activities. The visual impact of a development diminishes at an exponential rate as the distance between the observer and the object increases.

To understand the potential view of the project site, photographs were taken at five (5) points within 10km from the project area. The selected locations (LV-1 to LV-5) are considered to be representative of the varying views from receptor types likely to be impacted by the Project. It is important to note that visual impacts are only experienced when there are receptors present to experience this impact. Thus, where there are no human receptors or viewers present, there are no visual impacts to be experienced and thus not included in the survey. Since the area consists predominately of agricultural fields, with farmers often living in the villages, a limited number of people are present within large expanse of agricultural fields to experience a visual impact.

Additionally, viewing distances also contribute to how visual impacts are experienced, with visibility declining over distance. As such, the locations chosen focused on the settlements nearest to the project.

These locations were chosen after using GIS software and Shuttle Radar Topography Mission (SRTM) elevation data to prepare a number of ZTV, which represents the area over which elements of the project can theoretically be seen. The structures used for the ZTV were the Air Traffic Control Tower (77m), the Passenger Terminal building (37.35m), the Administrative Building (16.8m), the Power Intake (13.6m) and Solid Waste Collection facility (5.10m).

The ZTV presents a 'bare ground' scenario, i.e., the visibility of the Project in a landscape without screening structures such as buildings, ground-surface features or vegetation. The ZTV also does not take into account the effects of weather and atmospheric conditions and therefore can be said to represent a 'worst-case' scenario, that is where the airport infrastructures could potentially be seen given no intervening obstructions and favourable weather conditions.

As evident in the following figures and considering the relatively flat and unobstructed nature of the area, there are extensive areas from which the project infrastructure will potentially be visible by the nearby agricultural and residential receptors. Road users will also have views toward the Project at certain locations on the nearby roads.

The locations of the survey locations overlaid with each of the ZTV are shown in the figures below.

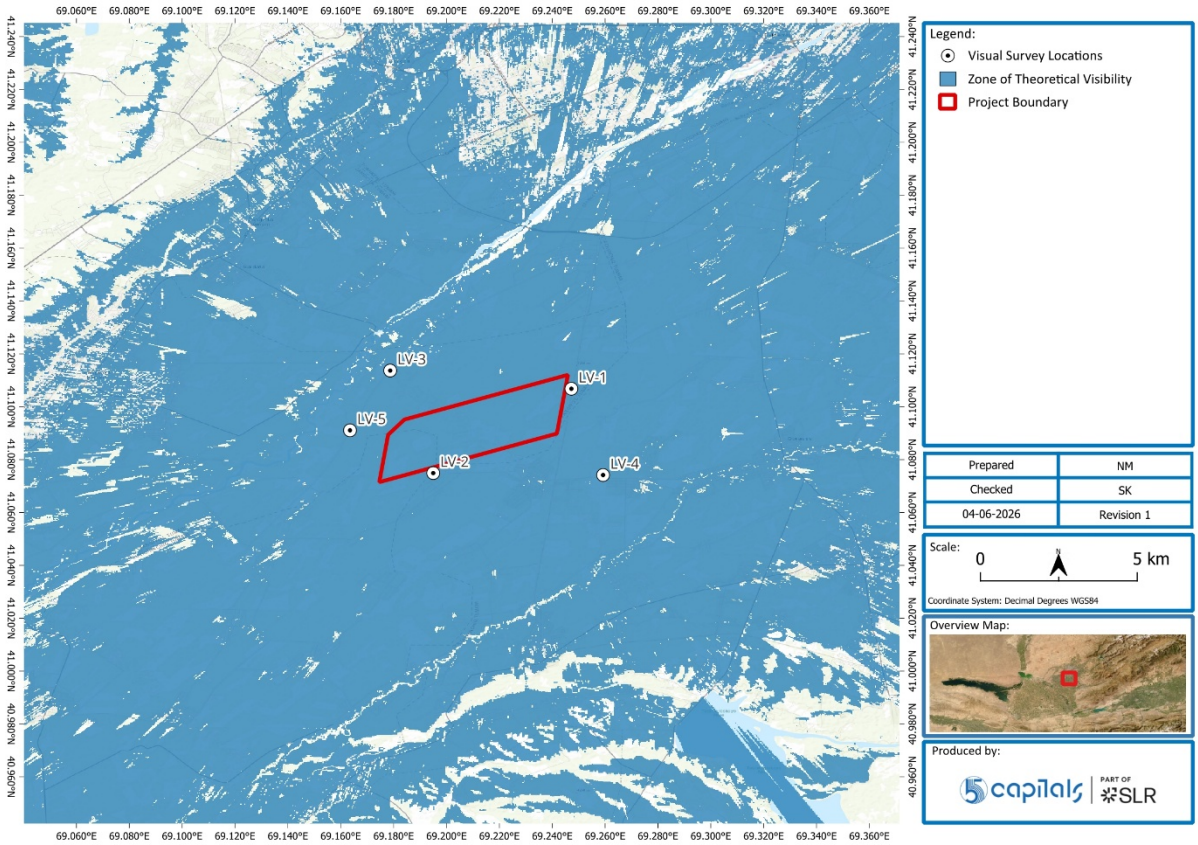



**Figure 13-9 Zone of theoretical visibility of the Air Traffic Control Tower**

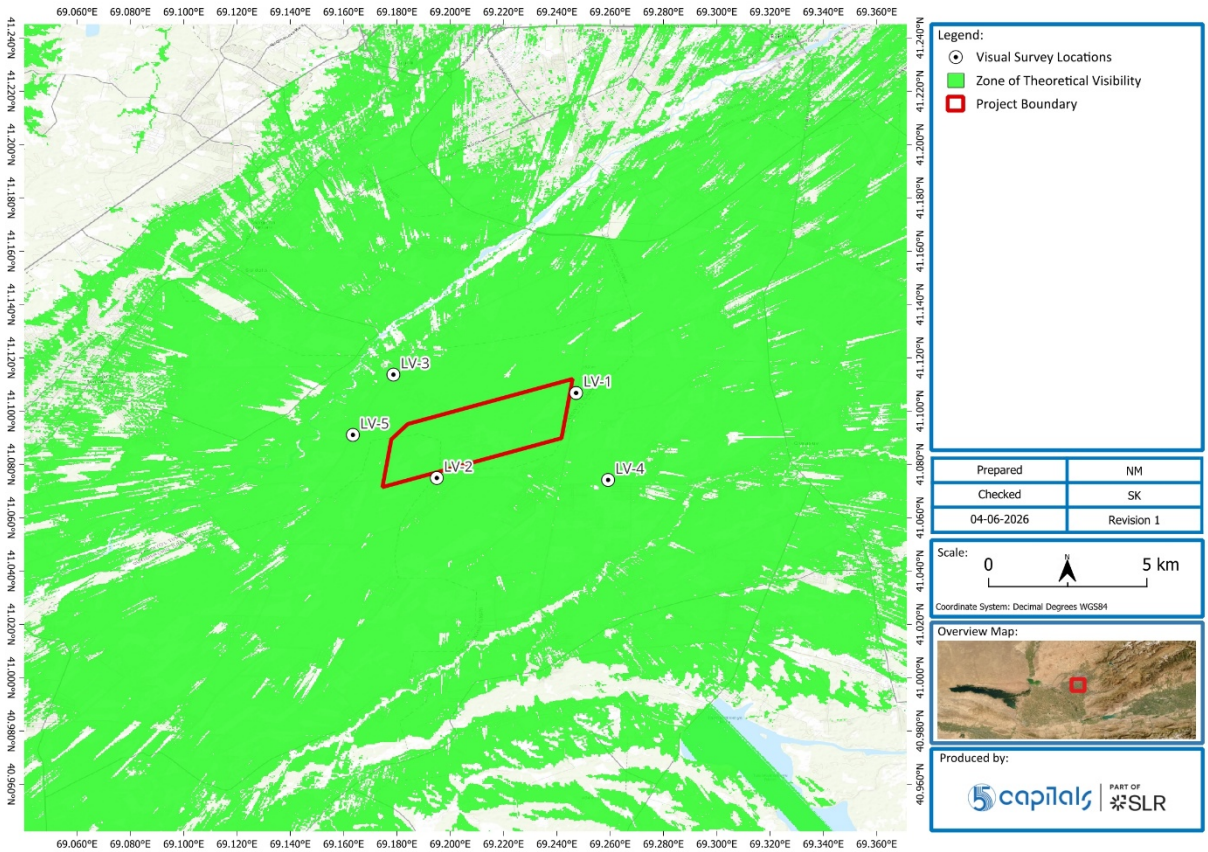



**Figure 13-10 Zone of theoretical visibility of the Passenger Terminal building**

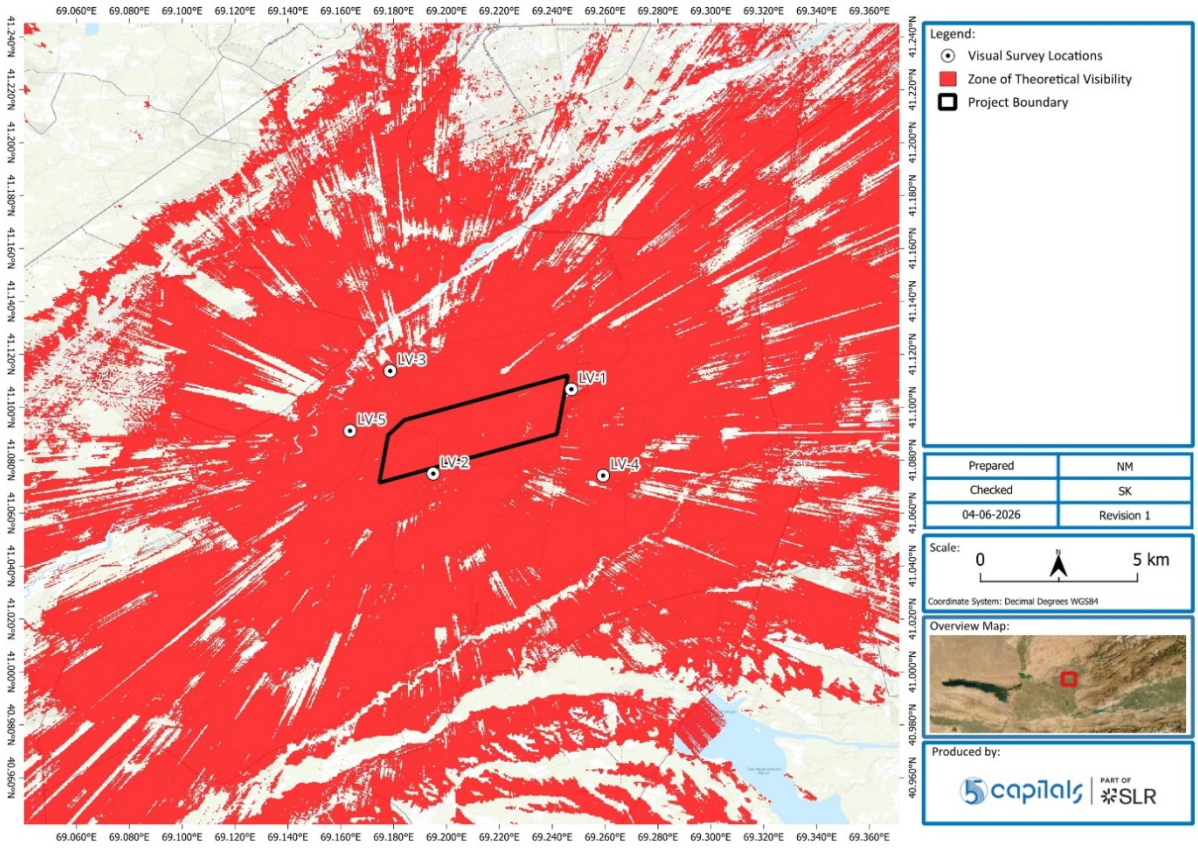



**Figure 13-11 Zone of theoretical visibility of the administrative building**

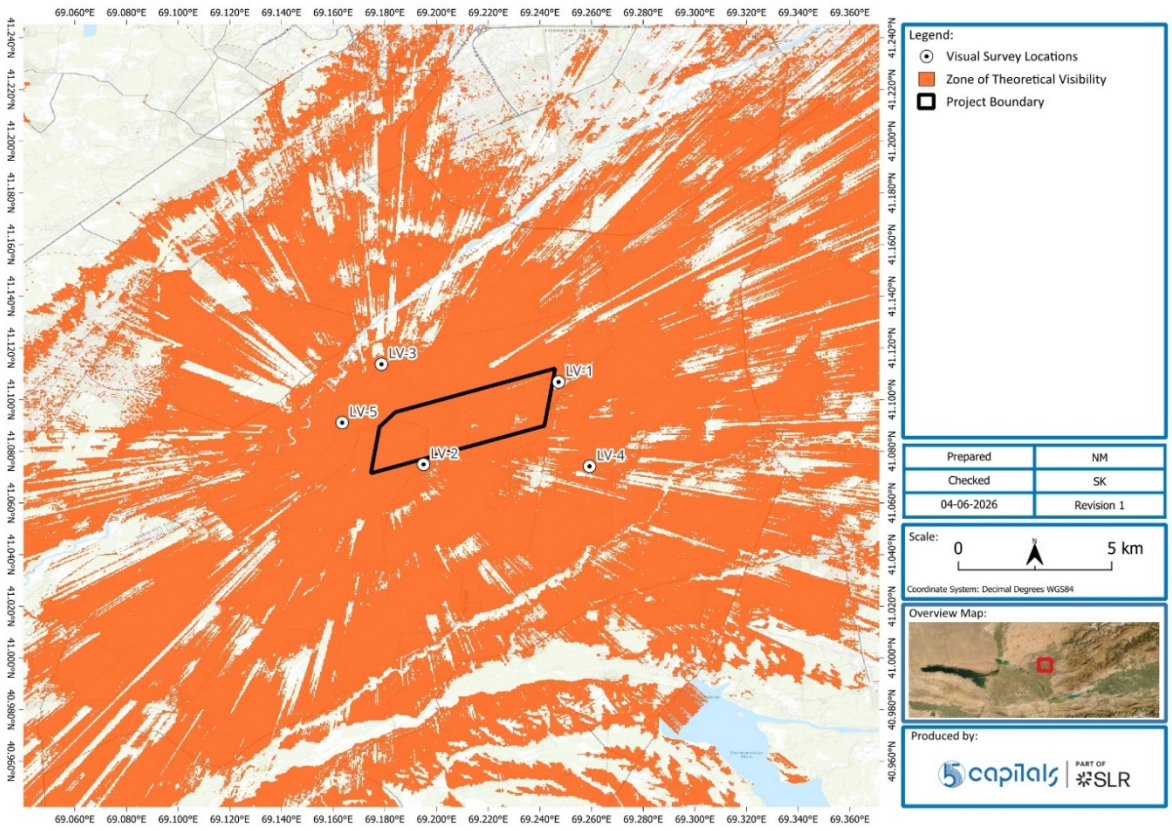



**Figure 13-12 Zone of theoretical visibility Power Intake**

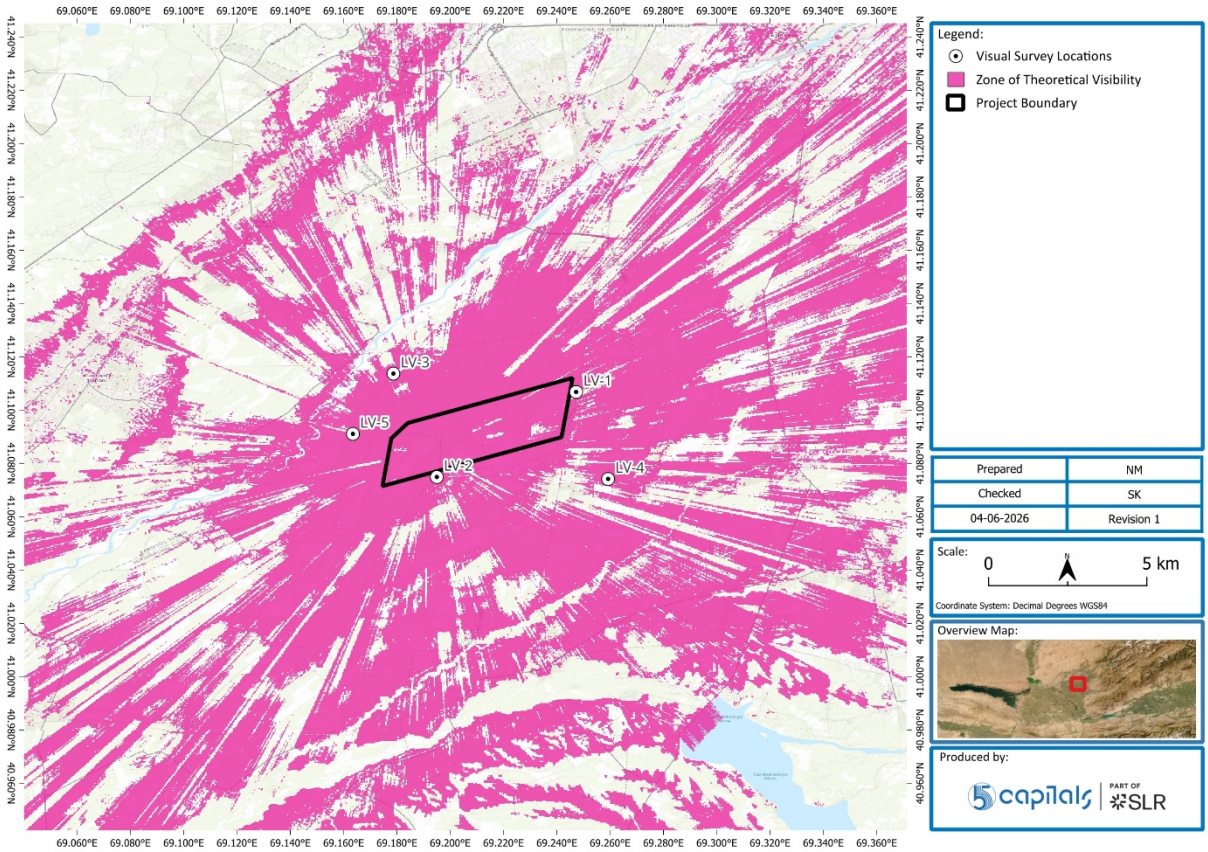


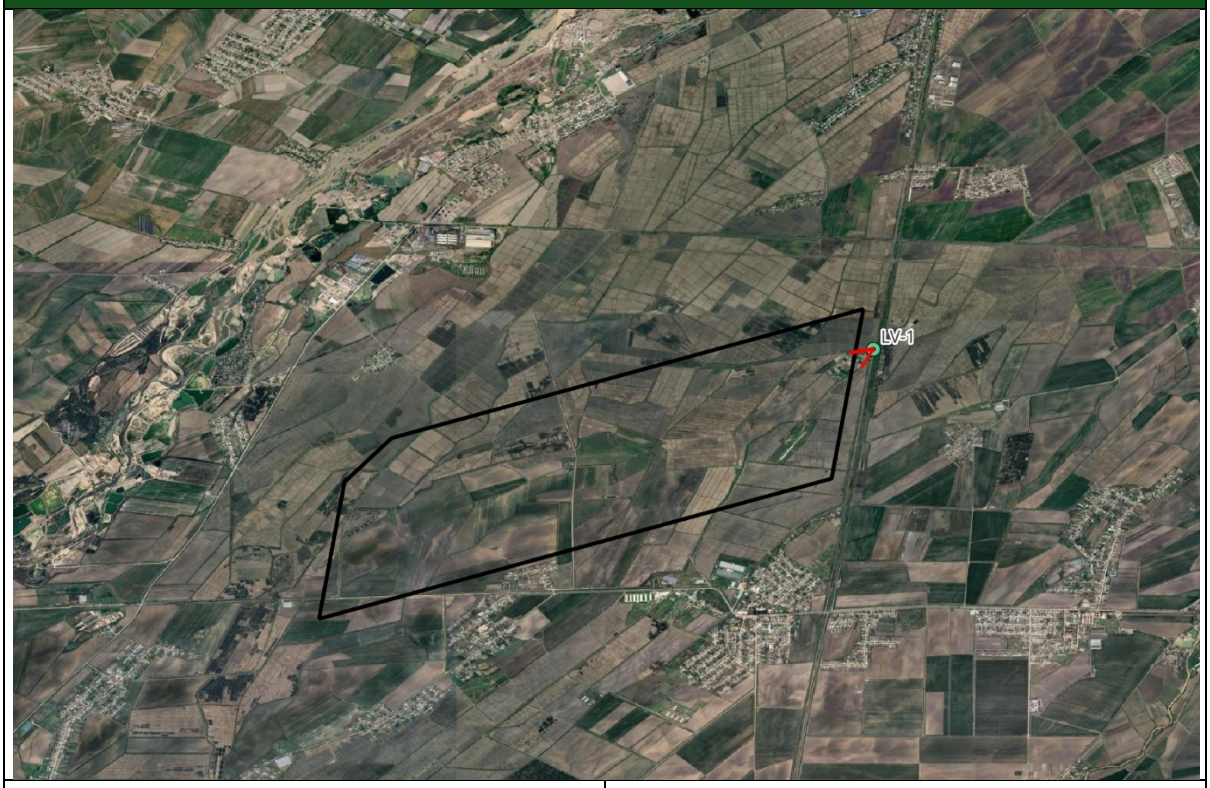

**Figure 13-13 Zone of theoretical visibility of the Solid Waste Collection facility**

Based on site observations, the general characteristics of the project site and surrounding areas are predominantly open agricultural areas, interspersed with water canals and small settlements with low-rise buildings.

Other than the Settlements, which have resulted in an amount of anthropogenic disturbance to the visual envelope of the landscape, views across the Project site are predominantly unobstructed and provide a typical example of agricultural areas found in Uzbekistan.

A photographic record from each of the viewpoints (LV1 to LV5), as well as any observations made about these locations are outlined in the table below. The visual assessment is based on views from external spaces within the public domain and not from inside buildings or private spaces.

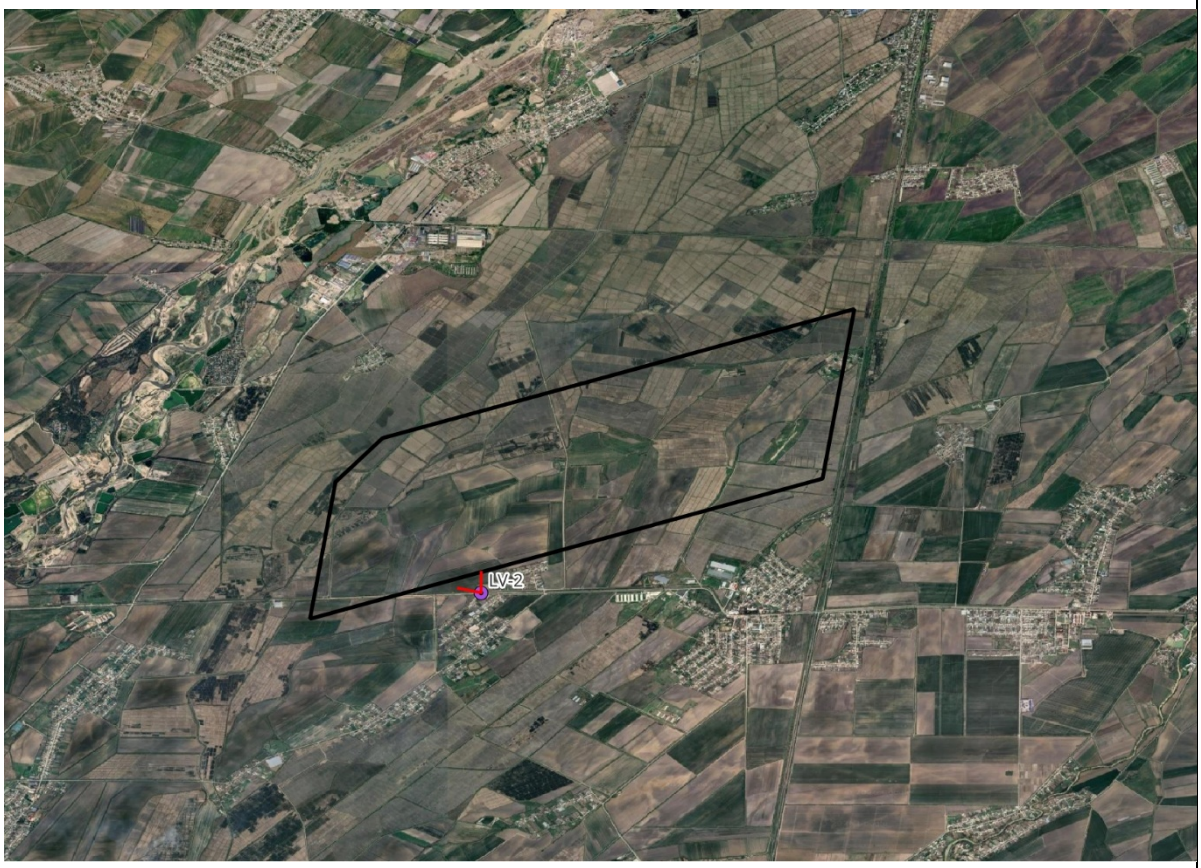
## LV-1



Comments:

The view of the project site, as observed from LV-1 is influenced by the small agricultural settlement located adjacent to the railway on the northeastern corner of the project site. From this location, views toward the new airport will be partly screened by existing structures. Given the proximity to the site, the taller airport infrastructure such as the Control tower and passenger terminal building will still form a prominent and clearly noticeable feature in the wider landscape. However, smaller buildings and infrastructures such as the solid waste collection facility is unlikely to be visible from LV-1

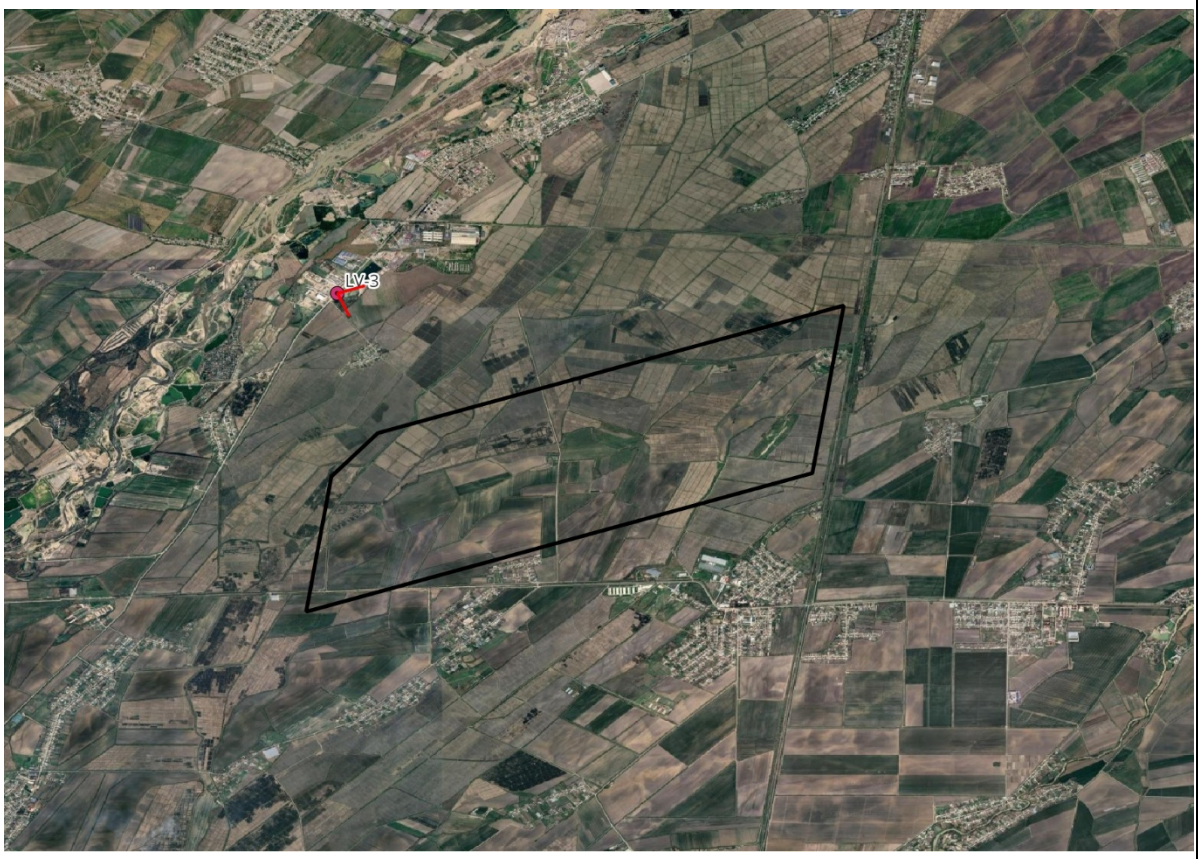
## LV-2



Comments:

The views toward the project site as observed from LV-2 are largely unobstructed towards the northwest, but several buildings from the rural settlement is visible when facing north and northeast.. From this location, the landscape is characterised primarily by open agricultural fields, intersecting irrigation canals, and scattered small-scale farming structures and the rural village. Several trees line the irrigation channel and within the settlement will offer some obstruction of the views, but considering the vicinity and scale of the project, the shielding provided will likely be limited.

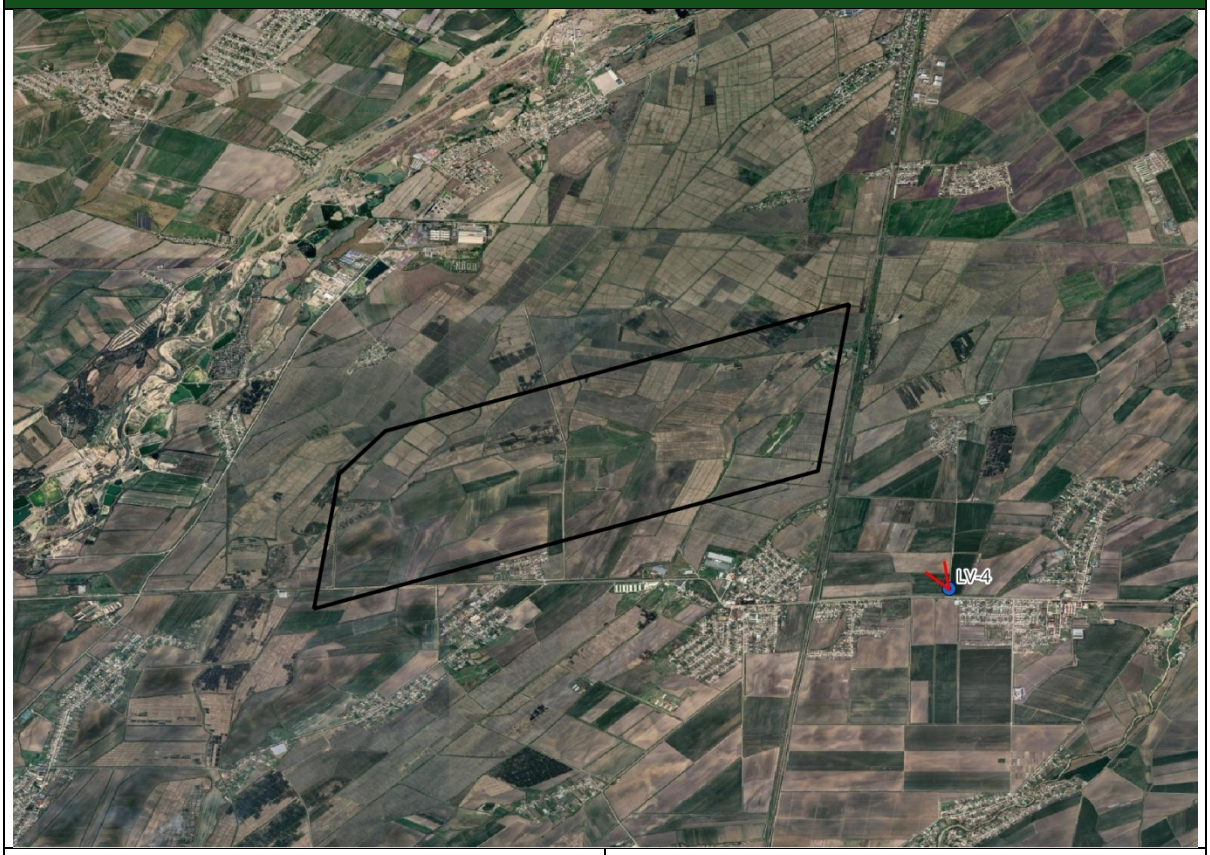
## LV-3



Comments:

Views from LV-3 represent the perspective from the more distant settlement located approximately 2 kilometres north of the project boundary. From this vantage point, the outlook toward the project site is largely open, with a small lake and expansive agricultural fields occupying the immediate foreground, interspersed with localised village structures and overhead transmission lines. Consequently, while the new airport remains within a direct and clear line of sight, the increased distance ensures that the individual airport structures will appear less prominent and integrate more quietly into the broader horizon. Smaller infrastructure such as the solid waste collection facility, Power Intake and administrative buildings will likely not be overly visible from this distance.

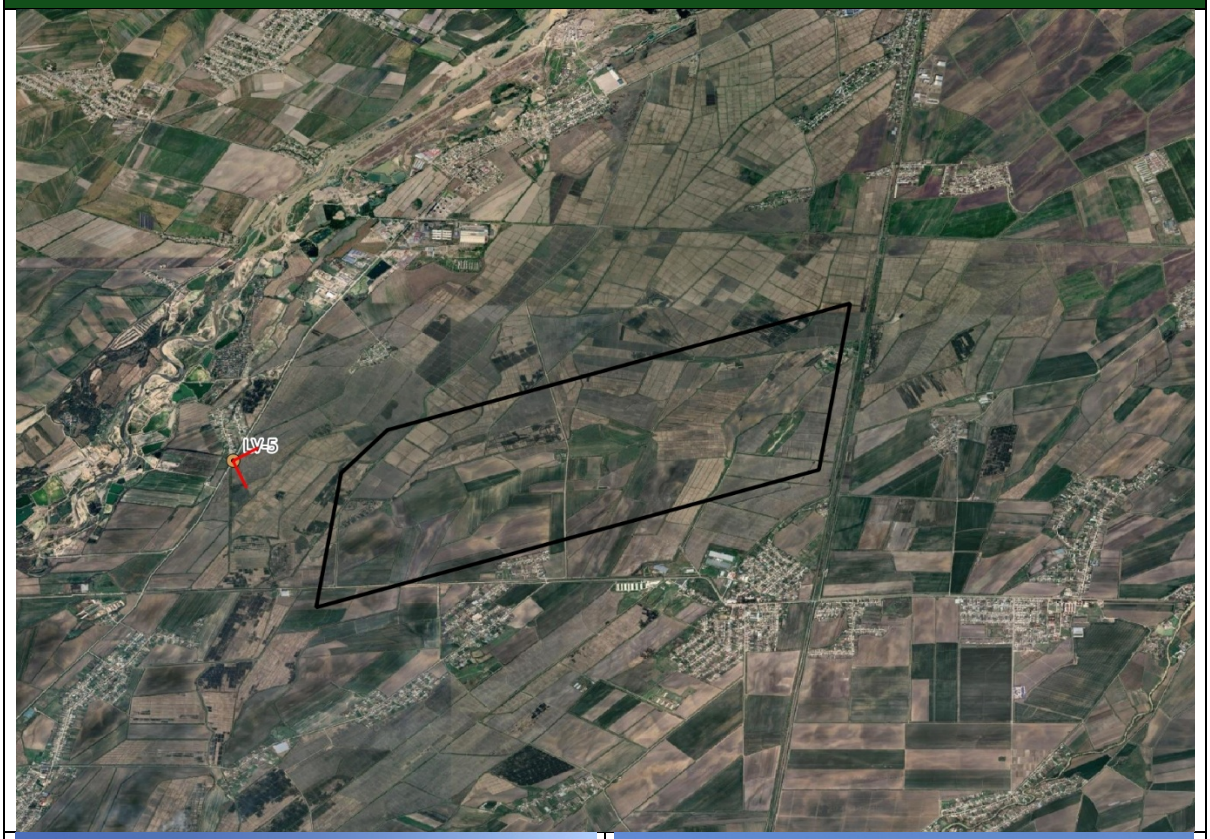
## LV-4



Comments:

The views from LV-4 represent the views as seen from another more distant agricultural settlement located around 2.4 km southeast of the project boundary. From this location, the view toward the project site is largely unobstructed, with wide-open agricultural fields interspersed with medium-height trees occupying the foreground. As a result, the new airport is anticipated to be within a direct and clear line of sight from this viewpoint. However, due to the 2.4-kilometre distance from the site, the airport structures will likely appear less prominent on the horizon. Smaller infrastructure such as the solid waste collection facility, Power Intake and administrative buildings will likely not be overly visible from this distance

## LV-5



Comments:

The views from LV-5 represent those seen from the settlement located around 1.2 km west of the project boundary. From this location, the outlook towards the project site is largely open, with only agricultural fields and small anthropogenic features such as the road, bus stop, and power or telephone lines in the foreground. As a result, the new airport will be clearly noticeable within the wider landscape.

## 13.3 Receptors

The potential landscape and visual receptors are presented in Table 13-1.

**Table 13-1 Sensitive Receptors for Landscape and Visual Impacts**

| Receptor | Receptor Type | Sensitivity | Justification |
|---|---|---|---|
| Landscape Character | Agricultural Landscape (LCA 1) | Medium | While agricultural areas provide notable aesthetic value as an open, green space outside of the Tashkent urban sprawl, agricultural areas also support notable pockets of semi-natural vegetation that contribute to the regional landscape character.<br>As a landscape that provide a visual relief to a largely homogeneous landscape, its landscape character is susceptible to "industrialization", where the introduction of extensive concrete and metal infrastructure would result in a loss of its vegetated, open-space sense of place. |
| | Residential Communities (LCA 2) | Low | The settlements in the area can largely be defined by a mix of residential and farming related structures that lack distinctive or protected features. The presence of busy roads, infrastructure, and various agricultural and related industry activities act as notable detracting features that reduce the area's overall aesthetic quality. Since the landscape lacks recognized features of local or national importance and possesses little unique characteristics, it is not considered highly susceptible to changes in landscape character and sense of place. |
| | Industrial and Commercial Areas | Very Low | Within the nearby settlements, there are several industrial and commercial areas such as warehouses, feedlots, engineering companies, and truck or agricultural equipment sales and service centres.<br>As a highly modified, industrial zone with no natural aesthetic or recognised features of local or national importance, it has a very high capacity to absorb similar developments and is not considered susceptible to changes in landscape character. |
| | Natural Water Bodies (LCA 4) | Medium | The Chirchiq River basin forms a distinct natural feature in a largely modified landscape. It forms a distinct green corridor, providing a clear visual and ecological break from surrounding fields and settlements. The area has a moderate capacity to absorb change due to existing human infrastructure (water canals). However, it remains sensitive to large-scale industrial developments that could disrupt its visual continuity or alter the perceived naturalness of the river basin. |
| | Undeveloped Landscape (LCA 5) | Medium | The area lacks any recognised features of local or national value and has no distinctive characteristics. The landscape is untouched and without interesting features hence, it is of low value.<br>This area consists of a relatively featureless, semi-natural shrubland that lacks any recognised features of local or national value. Due to its flat topography, |

| Receptor | Receptor Type | Sensitivity | Justification |
|---|---|---|---|
| | | | and the presence of localised anthropogenic disturbances, the landscape possesses a relatively high capacity to absorb change and is not highly susceptible to modifications in its character or sense of place. |
| Change in the visual amenity of Communities and Settlements | Residential | High | Residents in the immediate surrounding residential areas will have direct and unobstructed views of the proposed airport. As they place high value on the existing views from their homes and gardens, they are highly susceptible to adverse changes in visual amenity. This vulnerability arises from prolonged, daily exposure to the new airport infrastructure, frequent aircraft movements, and associated lighting. |
| Change in the visual amenity of Communities and Settlements | Residential | High | Residents in the surrounding residential areas will have direct, close-range, and unobstructed views of the proposed airport infrastructure. As they place high value on the existing views from their homes and gardens, they are highly susceptible to adverse changes in visual amenity. This vulnerability arises from prolonged, daily exposure to the new airport infrastructure, frequent aircraft movements, and associated lighting at close proximity |
| Change in the visual amenity of Farmers in Homes | Residential /Agricultural | High | Farmers in the surrounding agricultural areas, particularly those living on or near their farmland, will have direct visibility of the airport. Given that they attach high value to views from their homes, gardens and working land, they are highly susceptible to changes in visual amenity resulting from prolonged, daily exposure to the introduced airport structures, aircraft activity, and lighting. |
| Change in the visual amenity of Farmers in fields | Agricultural | Low | Farmers working in their fields will have direct views towards the project site, with few detracting features or obstructions. However, given that farmers are present in the open fields transiently and their attention is strictly focused on task-oriented outdoor farming activities rather than the landscape, any exposure to the project will be temporary and short-term in nature. Consequently, they possess a low susceptibility to changes in visual amenity. |
| Change in the visual amenity of Businesses and shopping areas | Commercial | Medium | Visitors to nearby commercial and shopping areas will have direct views of the airport from premises, car parks, and outdoor spaces.<br>These visitors are typically present only temporarily for business or shopping purposes. As a result, any views of the project site are incidental and short-term in nature. Consequently, they are moderately susceptible to changes in visual amenity arising from the introduction of airport structures, aircraft movements, and associated lighting. |
| Change in the visual amenity of Cultural heritage and grave yards | Cultural | High | Locations containing tangible or intangible cultural assets that contribute to society carry high importance. Visitors to nearby cultural heritage areas and graveyards will have direct views of the airport. While they are only present temporarily for visitation |

| Receptor | Receptor Type | Sensitivity | Justification |
|---|---|---|---|
| | | | or remembrance, these locations demand a high expectation of dignity, quiet, and visual continuity. As such, graveyards and cemeteries are considered highly susceptible to changes in visual amenity that introduce large-scale industrial structures, frequent aircraft movements, and disruptive lighting into a sensitive setting. |
| Change in the visual amenity of Industrial Areas and factories | Industrial | Very Low | Workers and occupants in nearby industrial areas and factories will have direct views of the airport from buildings, yards, roads, and external spaces.<br>Their presence is mainly work-related and while prolonged, their attention is focused on industrial tasks rather than visual amenity.<br>The existing industrial environment already has low visual quality and minimal expectation of attractive views.<br>Therefore, these receptors have low susceptibility to visual impacts from airport structures, aircraft movements, and lighting. |

## 13.4 Potential Impacts, Mitigation, and Management

In landscape and visual assessment (LVIA), unlike air or noise, many impacts (especially landscape character change) are inherent and permanent, and mitigation does not always materially reduce the residual significance. Therefore, residual impact will only reduce where mitigation is demonstrably effective.

### 13.4.1 Impact Assessment Methodology

The assessment process for visual impact is determined by reference to the sensitivity of the area and the magnitude (or visual effect) of the proposal in that area.

Visual sensitivity refers to the character of a setting, the quality of a view and how critically a change to the existing landscape would be viewed from various viewpoints. For example, users of recreation areas view the surrounding landscape as part of their leisure experience and would consider view changes to the landscape more critically than others.

The visual magnitude (or visual effect) of a development is the degree of contrast between the development and the pre-existing landscape.

The visual impact is thus determined by considering both the sensitivity of the receivers and the magnitude of impact as indicated in Table 4-3. The combination of visual sensitivity and visual magnitude results in specific levels of impacts for each receiver.

The assessment considers the visibility of the proposed airport from representative viewpoints, identifies visual sensitivity and then assesses visual impact. The viewpoints selected for assessment are intended to represent a range of typical views found within the area, including those viewpoints where a reduction in visual amenity would have some visual impact due to:

- the duration of the view (residents in surrounding suburbs would receive longer duration views in comparison to motorists passing on busy roads);
- the importance of visual amenity to the experience of the location (visitors to recreational areas are likely to place greater value on visual amenity than staff at an industrial estate); or
- where there are large numbers of potential viewers (such as motorists on busy roads).

The visual impacts of the construction and operation of the project are considered in this chapter.

### 13.4.2 Construction Phase Impacts

#### 13.4.2.1 Change in Landscape Character

The construction of the new large-scale airport development will have a potentially a notable impact on the landscape character of the immediate area. During construction, extensive site preparation activities, including clearance of existing vegetation, large-scale levelling, grading, and earthworks will modify the topography and land use across the project site.

These works will transform the inherent character of the area, replacing the existing rural agricultural landscape, with disturbed and bare soil, graded surfaces, stockpiles of excavated material, construction laydown areas and camps, temporary access roads, and heavy machinery.

**LCA 1:** As a predominantly agricultural area, the value of this landscape character lies in the landscape's notable aesthetic value as an open, green space outside of the Tashkent urban sprawl and its role as a visual relief. As such, LCA-1 is susceptible to 'industrialization', where

the introduction of extensive concrete and metal infrastructure would result in a loss of its vegetated, open-space qualities.

However, LCA-1 is the dominant landscape character in the surrounding region, as shown in Figure 13-8, with the project boundary only taking up a portion of the large agricultural landscape. Thus, the construction of the project will result in a partial loss of the wider agricultural landscape, with the broader area outside the project boundary retaining its landscape character. As such, in line with the Criteria for Magnitude of Impacts (Table 4-2), the magnitude of impact on LCA-1 can be considered **moderate adverse**, with the change considered permanent and beyond the immediate project boundary, but the wider regional resource will ultimately remain intact.

**LCA 2:** This Landscape Character Area is comprised primarily of residential settlements, characterized by small rural and low-rise housing. As shown in Figure 13-8, LCA-2 covers only a small section of the project area. Consequently, while construction of the airport will result in the complete, permanent and irreversible removal of a small portion of this residential landscape inside the project boundary, the wider character area outside the footprint will remain mostly unaffected. Although the upgrade of access roads will cause some localized change in the surrounding settlements, the baseline landscape consists of man-made buildings, lacks recognized features of local or national importance, and possesses few unique characteristics. It is therefore not considered highly susceptible to changes in landscape character, suggesting a high capacity to absorb the introduction of new infrastructure without a fundamental change to its overall character.

In line with the Criteria for Magnitude of Impacts (Table 4-2), the magnitude of impact on LCA-2 can be considered **minor adverse**, with the change considered minor and localized, and the broader residential settlement character area across the surrounding region remaining mostly intact.

**LCA 3:** Landscape Character Area 3 is comprised of industrial and commercial areas situated within sections of the nearby settlements, consisting of warehouses, feedlots, engineering companies, and truck or agricultural equipment sales and service centres. As a highly modified, industrial zone with no natural aesthetic or recognized features of local or national importance, this LCA has very high capacity to absorb similar developments and is not considered susceptible to changes in landscape character.

Furthermore, as shown in Figure 13-8, LCA-3 is located outside of the main project footprint, meaning the construction of the airport will not result in the direct removal or loss of this landscape character type. While the upgrade of access roads and highways to serve the airport may temporarily impact LCA3, the changes are not considered a notable detraction from the commercial and industrial character of this LCA.

In line with the Criteria for Magnitude of Impacts (Table 4-2), the magnitude of impact on LCA-3 can be considered **negligible adverse**, with the change considered a very minor, localized alteration to a character area that ultimately remains mostly intact.

**LCA 4:** Landscape Character Area 4 is comprised of Natural Water Bodies, primarily the Chirchiq River basin that forms a distinct natural feature in a largely modified landscape. It creates a prominent green corridor, providing a clear visual and ecological break from surrounding fields and settlements. The area has a moderate capacity to absorb change due to the presence of existing human infrastructure, such as water canals. However, it remains sensitive to large-scale developments that could disrupt its visual continuity or alter the perceived naturalness of the river basin.

As shown in Figure 13-8, LCA-4 is located entirely outside of the main project footprint, meaning the construction of the airport will not result in any direct removal or physical fragmentation of this natural water body. While the development of the airport and the upgrade

of access roads will introduce large-scale infrastructure into the wider landscape, these changes will occur at a distance and will not break the visual continuity of the corridor.

In line with the Criteria for Magnitude of Impacts (Table 4-2), the magnitude of impact on LCA-4 can be considered negligible adverse, with the change considered a minor, indirect alteration, while the wider regional landscape character remains intact.

**LCA 5:** Landscape Character Area 5 consists of a relatively featureless, semi-natural shrubland characterized by a flat topography and an open, undeveloped nature. While the vast majority of LCA-5 sits entirely outside the project boundary, a minor, localized patch falls within the main site footprint.

In line with the Criteria for Magnitude of Impacts (Table 4-2), the magnitude of impact on LCA-5 is considered Minor adverse. The project results in only a small, direct physical loss of this area, while the majority of the landscape character remains untouched.

#### 13.4.2.2 Reduction in Visual Quality

The movement of heavy construction vehicles (trailers, dump trucks, graders, excavators, loaders, tower and vehicle cranes) to and from the airport site, together with earthworks on sandy surfaces, will generate dust and temporary haze, causing short-term disturbance to visual amenity at nearby receptors with views of the site.

However, the magnitude of this visual disturbance and the visibility of temporary structures will be directly influenced by three key factors: distance, source duration, and intervening screening.

- **Distance:** For receptors in close proximity, the erection of tall cranes and other temporary structures will introduce a very prominent visual intrusion, and localized dust will be highly visible within their direct field of view. Conversely, for more distant receptors, the overall magnitude of visual change will be notably lower, as these temporary elements will appear much smaller on the horizon and the visual clarity of dust or haze naturally diminishes over greater distances.
- **Source Duration:** The magnitude of impact is further influenced by the daily operational hours of the construction activity. Elements that operate continuously throughout a ten-hour shift present a greater cumulative physical impact on the landscape than short-term or intermittent equipment use restricted to fewer hours.
- **Intervening Screening:** Finally, the presence of localized screenings such as dense vegetation, trees, agricultural structures, or local topography will influence the actual magnitude of impact. Receptors with completely open, unobstructed views will experience the full physical scale of the construction activity, whereas partial or full screening will filter or entirely block the infrastructure from view, notably lowering the overall magnitude of the visual impact.

While all identified receptors will have a view of the broader landscape, their exposure and distance to the construction activities, as well as the presence of intervening screening will notably change the magnitude of the impact.

**Settlements and Homesteads (LV-1 through LV-5):** The magnitude of change for these receptors splits heavily based on the distance from construction and the density of localized screening. The immediate communities of lv-1 and lv-2 will experience a moderate visual impact due to their close proximity, though this is partially mitigated by the dense, self-screening effect of neighbouring structures, homes, garden walls, parked cars, and trees. Conversely, standalone nearby agricultural homesteads lack this denser built-up infrastructure, leaving them more exposed and resulting in a major magnitude of impact. For the more distant settlements of lv-3, lv-4, and lv-5, as well as distant homesteads, the magnitude drops to minor and moderate respectively as the scale of the visible construction

works and cranes will be notably reduced on the horizon, with minor tree lines further filtering the view.

**Agricultural Fields:** Farmers working in the fields face a high magnitude of visual change when nearby due to the open nature of the landscape, which offers no shielding from infrastructure and only minor obstruction from trees. At greater distances, the magnitude of impact is reduced to moderate as the construction works will appear smaller and less notable on the horizon, with the scattered tree lines providing mild filtering of the view.

**Commercial, Industrial, and Infrastructure Areas** The existing infrastructure and structures, such as factories, warehouses, and commercial buildings, as well as roadside trees, act as an effective visual screening. This obstruction notably reduces or completely blocks the lines of sight toward ground-level and low-level construction activities, keeping the overall magnitude of impact minor to negligible for both nearby and distant locations. However, a distinct difference exists based on the scale of the infrastructure, with nearby large-scale industrial areas and factories feature larger, taller warehouses that provide greater shielding, and lowering the magnitude of impact to minor. Nearby businesses and shopping areas consist of smaller retail developments, allowing higher visibility of cranes and other construction plant and equipment impact the view, resulting in a moderate magnitude of impact. From further away, these impacts will be reduced to negligible and minor respectively.

**Cultural Heritage and Graveyards:** these sites, ranging from the immediate vicinity to more distant locations, are located within agricultural fields or the edge of rural settlements, with only trees providing minor obstruction of views. Because they lack notable screening their exposure to construction activities is relatively direct, resulting in a high magnitude of impact when nearby and moderate when further from the project.

#### 13.4.2.3 Addition of Lighting

Consistent with the assessment of visual amenity, the magnitude of impact from the addition of temporary construction lights is directly influenced by three key factors: distance, source duration, and intervening screening.

- **Distance:** For receptors in close proximity, high-intensity floodlights will create a prominent, disruptive visual intrusion and localized glare. For receptors further away from the site, the magnitude of light impact will be notably lower as the light source appears smaller, and the intensity of glare diminishes over greater distances.
- **Source Duration:** The magnitude of the lighting impact further is influenced by the operational schedule. Continuously active light will present a greater impact than intermittent or short-term lighting use.
- **Intervening Screening:** The presence of localized screenings such as dense vegetation, trees, agricultural structures, or local topography will influence the actual magnitude of the lighting impact. Receptors with open, unobstructed views will experience the full intensity of the floodlights, whereas partially or fully shielded receptors will experience a notably lower magnitude of impact from lighting.

Nighttime works during construction of the new large-scale airport development will introduce temporary artificial lighting to the project site and immediate vicinity, which previously experiences limited artificial light due to its agricultural setting. During the construction phase, lighting will be intermittent, with lighting more intense in active construction areas, while reduced or completely off in no active areas.

Light sources will include the use of floodlights, tower-mounted lights, mobile lighting towers, and general site illumination to enable safe working conditions. The addition of such lighting will cause light spill beyond the site boundaries, potentially affecting nearby receptors through glare from high-intensity sources. While nighttime light haze or sky glow may be visible for

several kilometres in the low-light agricultural environment, the intensity of light spill will reduce with distance.

As detailed in the assessment for the Reduction in Visual Quality above and in line with the Criteria for Magnitude of Impacts, the magnitude of impact will range between Major for receptors in the immediate vicinity with unobstructive views (such as farmers in nearby homesteads or cultural heritage sites), Moderate for nearby receptors with localized shielding from infrastructures and trees and distant receptors with unobstructive views. To Minor and Negligible for industrial and commercial areas with large infrastructure providing notable shielding from light spill nearby and from greater distance.

### 13.4.3 Construction Phase - Impacts Assessment Summary for Landscape and Visual

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Changes in Landscape Character | Moderate | LCA-1 Agricultural Landscape | Medium | Moderate | Moderate |
| | Minor | LCA-2 Residential Communities | Low | Minor | Negligible |
| | Negligible | LCA-3 Industrial and Commercial Areas | Very Low | Negligible | Negligible |
| | Negligible | LCA-4 Water Bodies | Medium | Minor | Negligible |
| | MinorMinor | LCA-5 Undeveloped Landscape | Medium | Minor | Negligible |
| Disturbance to Visual Envelope of Receptors and addition of lighting | Moderate | Communities and Settlements within immediate vicinity | High | Major | Major |
| | Minor | Distant Communities and Settlements | High | Moderate | Minor |
| | Major | Farmers in nearby Homesteads | High | Major | Major |
| | Moderate | Farmers in Distant Homesteads | High | Major | Moderate |
| | Major | Farmers in nearby fields | Low | Moderate | Moderate |
| | Moderate | Farmers in Distant fields | Low | Minor | Negligible |
| | Moderate | Nearby Businesses and shopping areas | Medium | Moderate | Moderate |
| | Minor | Distant Businesses and shopping areas | Medium | Minor | Negligible |
| | Major | Nearby Cultural heritage and graveyards | High | Major | Major |
| | Moderate | Distant Cultural heritage and graveyards | High | Major | Moderate |
| | Minor | Nearby Industrial Areas and factories | Very Low | Minor | Minor |
| | Negligible | Distant Industrial Areas and factories | Very Low | Negligible | Negligible |

**Proposed Mitigation Measures**

Mitigation measures for Changes in Landscape Character

- A suitably qualified Environmental Control Officer (ECO) must be appointed in order to ensure that all visual related aspects are adequately mitigated and monitored for the duration of the construction phase.
- Site clearance, levelling & grading will be limited to the project footprint.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Large grade cut and fill transitions will be avoided where practicable, particularly hear the airport site boundary;<br>• Construction works will be limited to within the Project boundary.<br>• All temporary construction facilities will be removed upon completion of construction activities.<br>• If there is a considerable period of time between the completion of bulk earthworks and construction of aviation infrastructure, earthworks areas will be rehabilitated where it is practical to do so.<br><u>Mitigation measures for Changes in Visual Amenity and Lighting</u><br>• The ECO must monitor use of light and levels of light pollution by means of regular spot-checks, to be included in monthly compliance reporting.<br>• Where appropriate, construction laydowns and working areas of the site will be screened to reduce the visual intrusion to existing off site receptors.<br>• When not in use, cranes and other construction plant will be lowered, so they are at their minimum height and do not protrude unnecessarily disturbance within the visual envelope of local receptors.<br>• Good housekeeping will be implemented to reduce landscape and visual impacts relating to wastes and litter.<br>• Mitigation and management measures relating to the generation of dust (as detailed in the Air Quality Chapter of this ESIA) will be implemented to minimise visual impacts during construction activities.<br>• Minimise construction works at night-time to those strictly required and approved by the relevant authorities through issuance of night permits.<br>• Where practicable, existing vegetation on the edges of the construction impact zone will be maintained to provide visual screening<br>• Night-time activities will be avoided as much as possible and only undertaken when essential. Any required night works will be temporary and infrequent.<br>• Lighting will be low-intensity and properly shielded to avoid light spill. Night-time operations will be monitored and if notable impacts are observed, all night-time work will be halted.<br>• No lights will be installed facing outwards towards any of the receptor locations.<br>• Where lighting is needed in worker compounds, site offices, or similar areas, it will be fully shielded and directed downward to minimise glare and light spill.<br>• Low-intensity UV lighting will also be used to further reduce potential impacts.<br>• External security lights will be fitted with Passive Infrared motion sensors so that they activate only when movement is detected. These lights will be set to switch off automatically after five minutes of no activity.<br>• Any night lighting required for construction works will be located as far as practicable from sensitive receivers with appropriate screening as required;<br>• A construction phase Landscape Strategy and Lighting Management Plan will be developed prior to the start of construction.<br>• Construction plant, machinery and vehicle parking areas will be located as far as practicable from sensitive receivers;<br>• Retaining existing vegetation on the edges of the construction impact zone, where practicable to provide visual screening. | | | | | |

### 13.4.4 Operational Phase Impacts

#### 13.4.4.1 Change in Landscape Character

The operation of the new airport will result in a permanent change to the existing landscape character within the Project site and its immediate surroundings. The current landscape is predominantly open, flat, and agricultural in nature, characterised by expansive cultivated fields, limited built form, and a simple rural land use pattern. During operation, this will be replaced by extensive aviation-related infrastructure including runways, taxiways, terminal buildings, the ATC tower, hangars, support facilities, access roads and associated lighting infrastructure.

These elements introduce a large-scale transport and commercial land use that contrasts with the existing rural agricultural character. The replacement of vegetated farmland with extensive hardstanding, engineered surfaces, and prominent built structures will fundamentally alter the defining characteristics of the site.

The changes in landscape character are long-term and effectively irreversible for the operational life of the airport. While landscape planting and boundary treatment may soften edges and assist integration over time, they will not fundamentally alter the shift from a rural agricultural landscape to one influenced by major transport infrastructure.

Because the physical footprint of the operational airport remains the same as during construction, the spatial extent of these physical changes across the individual Landscape Character Areas (LCAs) does not change.

However, while the spatial extent of changes in physical characteristics remains the same during operations, the sense of place and tranquillity will change during operations, with the addition of airport activities that stretch beyond the project boundary, and thus an increase in the scale of the impact.

**LCA-1 Agricultural Landscape**

In addition to the complete, permanent and irreversible loss of agricultural landscape within the project boundary, the regular movement of aircraft overhead and the increase in regional traffic will introduce a further permanent and irreversible change to the tranquil and quiet character of the wider agricultural landscape.

As such, and in line with the Criteria for Magnitude of Impacts, the magnitude of impact on LCA-1 is assessed as **Major** adverse. The change in character is permanent and constitutes a complete loss within the site itself, with a notable change also occurring in the wider region.

**LCA-2 Residential Communities**

In addition to the complete, permanent and irreversible loss of a small residential community within the project boundary, airport activities (including aircraft overhead) and the increase in traffic from passengers and secondary sources such as catering companies will introduce a further permanent and irreversible change to the character of the nearby residential areas.

As such, and in line with the Criteria for Magnitude of Impacts, the magnitude of impact on LCA-2 is assessed as **Moderate** adverse. While the airport infrastructure will result in the complete, permanent and irreversible removal of a small portion of this residential landscape inside the project boundary, the wider character area outside the project footprint will experience only partial change due to airport activities and will retain its overall character as a residential community.

**LCA-3 Industrial and Commercial Areas**

While LCA-3 lies completely outside the main project footprint and is therefore not directly affected by the physical introduction of an operational airport, airport activities and the associated increase in regional traffic will still introduce a permanent and irreversible change to the character of the industrial and commercial areas.

As such, and in line with the Criteria for Magnitude of Impacts, the magnitude of impact on LCA-3 is assessed as **Minor** adverse. The change occurring outside the project footprint is limited, and the area will retain its overall character as an industrial community.

**LCA-4 Water Bodies**

Since LCA-4 lies entirely outside the main project footprint, the operation of the airport will not result in any direct removal or physical fragmentation of the Chirchiq River basin. However, airport activities and associate traffic increased will introduce additional noise and movement that will permanently and irreversible change the natural quiet environment along the river and associated water bodies.

As such, and in line with the Criteria for Magnitude of Impacts, the magnitude of impact on LCA-4 is assessed as **Minor** adverse. The landscape character will experience only partial change due to airport activities and will retain its overall character as a river basin and water body.

**LCA-5 Undeveloped Landscape**

While the vast majority of LCA-5 sits entirely outside the project boundary, a minor, localized patch within the main site footprint will experience complete, permanent and irreversible loss. Due to the addition of airport activities and associated traffic and noise, wider regional changes will also influence the preserved nature of the character area.

In line with the Criteria for Magnitude of Impacts, the magnitude of impact on LCA-5 is considered **Moderate** adverse due to the complete, permanent and irreversible removal of a small portion of this LCA inside the project boundary, but only partial change due to airport activities outside the boundary. Despite the notable change in the wider region, LCA5 will retain its overall character as an undeveloped landscape with semi-natural shrubland.

#### 13.4.4.2 Change in Visual Amenity

During operation, receptors with views toward the Project site will experience permanent changes in visual amenity. The increase of elevation by 1-2m as well as the introduction of large-scale buildings, airside infrastructure and vertical elements such as the ATC tower will interrupt previously open views across agricultural land and introduce new focal points within the viewshed.

For receptors in nearby settlements and farmsteads, the visual baseline will shift from predominantly horizontal agricultural fields to a view that includes built massing, movement and infrastructure. Aircraft taxiing, take-off and landing will introduce dynamic visual elements, resulting in increased movement within the field of view. While aircraft movement is intermittent, it will become a defining characteristic of views from certain locations.

Consistent with the methodology applied to the construction phase, the magnitude of impact is determined by distance, source duration, and intervening screening. While all identified receptors will have a view of the broader landscape, their exposure and distance to the operational airport, as well as the presence of intervening screening will notably change the magnitude of the impact.

The impacts Effects are expected to be greatest for those with direct and open views toward the airport infrastructure, with the most pronounced effects experienced by individuals with direct, unobstructed views toward the airport infrastructure.

Due to the flat topography and limited vertical features within the surrounding landscape, taller structures such as the ATC tower and terminal buildings will become defining features in the local landscape. The influence of this change will be permanent and extend beyond the immediate footprint, particularly where infrastructure is visible from surrounding agricultural land and settlements. However, the degree of influence will reduce with distance and will be moderated by existing vegetation, settlement structure and intervening features.

**Settlements and Homesteads (LV-1 through LV-5):** The magnitude of change for these receptors is based on the distance from construction and, height of buildings (including the 1-2m increase in ground level elevation)density of localized screening. The immediate communities of lv-1 and lv-2 will experience a moderate to major visual impact due to their close proximity and permanent change in view, though this is partially mitigated by the dense, self-screening effect of neighbouring structures, homes, garden walls, parked cars, and trees. Nearby agricultural homesteads lack this denser built-up infrastructure, leaving them more exposed to this permanent change in visual amenity and resulting in a major magnitude of impact. For the more distant settlements of lv-3, lv-4, and lv-5, as well as distant homesteads, the magnitude of impact drops to minor to moderate and moderate respectively as the scale of the visible airport infrastructures will be notably smaller, with minor tree lines further filtering the view.

**Agricultural Fields:** Farmers working in the fields face a major magnitude of visual change when in the vicinity due to the open nature of the landscape, which offer only minor shielding from the permanent addition of airport infrastructure. Further from the airport, the magnitude of impact is reduced to moderate as the airport will less notable on the horizon, with the scattered tree lines providing mild filtering of the view.

**Commercial, Industrial, and Infrastructure Areas**: From the commercial and industrial areas, the permanent addition of airport infrastructure and the increase in ground level elevationwill be less notable, as the existing infrastructure and structures, such as factories, warehouses, and commercial buildings, as well as roadside trees, will act as effective visual screening. This obstruction notably reduces or completely blocks the lines of sight toward most of the airport infrastructure, with only the tall ACT and terminal buildings likely to be visible. As such, nearby large-scale industrial areas and factories with larger, taller warehouses that provide greater shielding have a low magnitude of impact of **minor**. Nearby businesses and shopping areas consisting of smaller retail developments, will allow a higher visibility of permanent airport infrastructure, resulting in a moderate magnitude of impact. From further away, these impacts will be reduced to negligible and minor respectively.

**Cultural Heritage and Graveyards:** these sites, ranging from the immediate vicinity to more distant locations, are located within mostly agricultural fields or the edge of rural settlements, with only trees providing minor obstruction of views. Because they lack notable screening, their exposure to permanent addition of airport infrastructure will result in a major magnitude of impact when nearby and moderate when further from the airport.

#### 13.4.4.3 Addition of Lighting

As with the visual amenity, the magnitude of impact from the addition of permanent light fixtures is directly influenced by three key factors: distance, source duration, and intervening screening. During operations, the Airport will require continuous artificial lighting for aviation safety and security. This includes runway and taxiway lighting, apron lighting, terminal lighting, access road lighting and perimeter security lighting.

The introduction of extensive lighting infrastructure will permanently alter the existing night-time character of the area, which is currently characterised by relatively low ambient light levels associated with rural land use. During hours of darkness, the airport will become a prominent illuminated feature in the landscape. Potential effects include increased sky glow, localised glare, and the visibility of illuminated structures and aircraft movements.

For nearby rural receptors, this may reduce the perceived sense of night-time tranquillity and increase the visual prominence of the site after dark. The extent of this effect will depend on distance, line of sight, lighting design, and atmospheric conditions.

Operational lighting design will incorporate directional luminaires, shielding and aviation-specific light specifications to minimise light spill beyond operationally required areas where feasible. However, given aviation safety requirements, a degree of night-time visual prominence is unavoidable.

As detailed in the assessment for the Reduction in Visual Quality above and in line with the Criteria for Magnitude of Impacts, the magnitude of impact will range between Major for receptors in the immediate vicinity with unobstructive light spill (such as farmers in nearby homesteads or cultural heritage sites), Moderate for nearby receptors with localized shielding in the form of infrastructures and trees that can shield against light spill. Industrial and commercial areas with large infrastructure such as warehouse, factories and shopping centres that provide notable shielding from light spill will have magnitude of impact of Minor and Negligible respectively.

Artificial lighting may also influence insect activity and, indirectly, species that feed on insects. Any ecological implications associated with lighting are assessed separately within the Ecology chapter.

### 13.4.5 Operational Phase - Impacts Assessment Summary for Landscape and Visual

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| Changes in Landscape Character | Major | LCA-1 Agricultural Landscape | Medium | Major | Major |
| | Moderate | LCA-2 Residential Communities | Low | Minor | Minor |
| | Minor | LCA-3 Industrial and Commercial Areas | Very Low | Negligible | Negligible |
| | Minor | LCA-4 Water Bodies | Medium | Minor | Negligible |
| | Moderate | LCA-5 Undeveloped Landscape | Medium | Moderate | Minor |
| Disturbance to Visual Envelope of Receptors and addition of lighting | Moderate | Communities and Settlements within immediate vicinity | High | Major | Major |
| | Minor | Distant Communities and Settlements | High | Moderate | Minor |
| | Major | Farmers in nearby Homesteads | High | Major | Major |
| | Moderate | Farmers in Distant Homesteads | High | Major | Moderate |
| | Major | Farmers in nearby fields | Low | Moderate | Moderate |
| | Moderate | Farmers in Distant fields | Low | Minor | Negligible |
| | Moderate | Nearby Businesses and shopping areas | Medium | Moderate | Moderate |
| | Minor | Distant Businesses and shopping areas | Medium | Minor | Negligible |
| | Major | Nearby Cultural heritage and graveyards | High | Major | Major |
| | Moderate | Distant Cultural heritage and graveyards | High | Major | Moderate |
| | Minor | Nearby Industrial Areas and factories | Very Low | Minor | Minor |
| | Negligible | Distant Industrial Areas and factories | Very Low | Negligible | Negligible |

**Proposed Mitigation Measures**

Mitigation measures for Changes in Landscape Character

Given the permanent nature of airport infrastructure, mitigation will focus on integration and edge treatment, rather than avoidance of change.

- A Landscape Strategy will be implemented incorporating native and locally characteristic tree and shrub planting along the Project boundary and selected internal areas where aviation safety permits (i.e., outside obstacle limitation surfaces and wildlife hazard constraints).
- Planting design will prioritise species that are compatible with aviation safety requirements (i.e., non-fruiting, low bird-attracting species) and suitable for local climatic conditions.

| Potential Impacts | Magnitude of Impact | Receptor | Sensitivity | Impact Significance | Residual Impacts |
|---|---|---|---|---|---|
| • Boundary treatments (fencing, service yards, utility areas) will be designed and maintained to reduce visual clutter.<br>• A Landscape Management Plan will be implemented to ensure long-term maintenance, replacement of failed planting, and progressive maturation of screening vegetation.<br><u>Mitigation Measures for Changes in Visual Amenity</u><br>• Terminal buildings, hangars and ancillary structures will utilise colour palettes and finishes that reduce visual contrast with the surrounding landscape (e.g., muted, non-reflective tones) where possible.<br>• The use of signages will be rationalised and use of excessive advertising will be minimised..<br>• A GRM will remain in place during operations to record and address any landscape or visual concerns raised by local stakeholders.<br>• A detailed operational Landscape Strategy and Management Plan will be developed prior to the commencement of construction and will incorporate Natural England or equivalent best-practice guidelines, while ensuring that landscape design features do not conflict with aviation safety and obstacle clearance requirements as outlined by the International Civil Aviation Organization (ICAO).<br><u>Mitigation measures for Lighting</u><br>Operational lighting must comply with aviation safety regulations; therefore, mitigation focuses on minimising unnecessary spill and glare while maintaining required safety standards.<br>• A Lighting Design Strategy will be implemented in accordance with applicable aviation and international good practice standards, ensuring lighting levels are appropriate for operational safety but not excessive.<br>• All external lighting will utilise full cut-off or semi cut-off luminaires where compatible with aviation requirements to reduce upward light spill and sky glow.<br>• Lighting fixtures will be directional and oriented downward toward operational surfaces, minimising horizontal spill beyond the site boundary.<br>• Lighting column height and luminaire specification will be optimised to balance operational coverage and reduction of glare to nearby receptors.<br>• Shielding, cowls or baffles will be incorporated where feasible to reduce light trespass toward sensitive receptors.<br>• Lighting controls (e.g., zoning, dimming, motion control for non-critical areas) will be implemented where operationally appropriate.<br>• Regular inspection and maintenance of lighting systems will be undertaken to prevent misalignment and excessive glare.<br>• The Lighting Strategy will consider ecological constraints to avoid unnecessary attraction of insects and wildlife, consistent with the airport's wildlife hazard management plan.<br>• A detailed operational Lighting Management Plan (LMP) will be developed prior to the commencement of operation and will incorporate DarkSky International and Illuminating Engineering Society or equivalent design principles to maximize night sky protection, without compromising on aviation safety requirements as outlined by the ICAO. | | | | | |

### 13.4.6 Cumulative Impacts

A cumulative impact assessment considers the incremental changes to the landscape and visual environment that result from the proposed Tashkent International Airport development when added to other past, present, or reasonably foreseeable future projects.

Following a review of regional planning data and consultation with stakeholders, it was concluded that there are no known existing or proposed major commercial or industrial developments within a 30km of the project site. The surrounding landscape is characterized primarily by agricultural fields, rural settlements, and existing infrastructure corridors that do not present a high-intensity cumulative visual burden.

# 14.0 Cultural Heritage and Archaeology

## 14.1 Applicable Requirements and Standards

### 14.1.1 National Standards

**Law of the Republic of Uzbekistan No. 3PY-229 (August 29 2009, as amended 2017, 2018, 2021): On The Protection and Use of Archaeological Heritage Sites**

**Article 6:**
The Ministry of Culture of the Republic of Uzbekistan:

- carries out state control over the protection, preservation and use of archaeological heritage sites;
- establishes the procedure for recording and storing archaeological objects
- maintains the State Catalogue of Archaeological Objects;
- registers archaeological objects in the State Catalogue of Archaeological Objects;
- collects scientific reports and ensures their storage in the departmental archive.

**Article 8:**
Local government bodies within their territories:

- provide conditions for the proper protection and maintenance of archaeological heritage sites;
- carry out state control over the state of preservation of archaeological heritage sites;
- ensure, in accordance with the law, compliance with the requirements for the preservation of archaeological sites when planning the allocation of land plots for earthworks, land management, construction, reclamation, economic, road and other works;
- involve, on a voluntary basis, citizens' self-government bodies, non-governmental non-profit organizations and citizens in carrying out activities for the protection, preservation and popularization of archaeological heritage sites.

**Urban Planning Code of the Republic of Uzbekistan, 2021**

Provides provisions for the protection of cultural heritage and the amenity of communities within their properties and on adjacent lands and properties.

**Law of the Republic of Uzbekistan No. ZRU-276 (27 December 2010): On Burial and Burial Services**

**Article 2:**
Where an international treaty sets rules different from those provided in national burial legislation, the provisions of the international treaty prevail.

**Article 4:**

- Land allocated for burial places must comply with ecological, sanitary, urban planning norms and other regulatory requirements.
- Burial places fall under the direct authority of district and city state authorities, which are responsible for their administration and protection.
- Demolition of burial places is prohibited
- Relocation is allowed only in exceptional circumstances, as per the decision of district or city state authorities and in accordance with established procedures.
- Use of territories previously occupied by burial places is permitted only after 20 years have elapsed since relocation.

- Such land may be used exclusively for landscaping purposes, including planting ornamental trees and shrubs. Construction of buildings and structures on such land is strictly prohibited.

**Article 15:**

- Environmental control is exercised by the State Committee of the Republic of Uzbekistan for Ecology and Environmental Protection
- Sanitary and epidemiological control is exercised by the Ministry of Health
- All works and services carried out at burial places must comply with ecological norms, sanitary rules, and locally approved rules for graveyard maintenance established by local authorities
- Local state authorities are obligated to suspend or terminate works and services where violations of ecological or sanitary requirements occur; and are required to take measures to eliminate violations and prevent adverse impacts on human health and the environment.

**Article 16:**

- Before undertaking any works in areas where graves may be present, local state authorities are legally required to conduct an inspection of the territory.
- If old or previously unknown graves are discovered, local authorities must:
    - Mark and officially register the graves
    - Organize reburial of preserved human remains where necessary
- Any search for or opening of such graves by individuals or legal entities without the appropriate authorization from local authorities is strictly prohibited
- Where old or previously unknown graves also qualify as archaeological heritage objects, any search or excavation must be conducted in accordance with legislation on the protection and use of archaeological heritage sites.

**Other relevant legislation:**

- Constitution of the Republic of Uzbekistan, the Criminal Code of the Republic of Uzbekistan (2023);
- Law “On protection and use of cultural heritage (2001, as amended in 2022).

### 14.1.2 Lenders’ Requirements

In recent years, International Financial Institutions (IFIs), including the IFC and EBRD, have published updated standards and guidance in relation to cultural heritage as well as other aspects of environmental and social receptors that are most impacted by major development. They all identify two types of heritage that can be affected by development: tangible and intangible. Tangible heritage refers to the physical remains of human activity in the past (i.e.: archaeological remains), while intangible heritage refers to practices, beliefs and knowledge that has been passed down to current communities by their ancestors.

#### 14.1.2.1 International Finance Corporation (IFC)

The IFC Performance Standard 856 (PS8) was developed to inform and set out minimum requirements for the protection of cultural heritage resources in development projects supported by the IFC.

> *6. The requirements of ESS 8 apply to cultural heritage regardless of whether it has been legally protected or previously identified or disturbed*

[56] IFC, January 2012, Performance Standard 8, Cultural Heritage. https://www.ifc.org/en/insights-reports/2012/ifc-performance-standard-8

*7. The requirements of ESS 8 apply to intangible cultural heritage only if a physical component of a project will have a material impact on such cultural heritage or if a project intends to use such cultural heritage for commercial purposes.*

*8. The environmental and social assessment, as set out in ESS1, will consider direct, indirect and cumulative project-specific risks and impacts on cultural heritage. Through the environmental and social assessment, the Borrower will determine the potential risks and impacts of the proposed activities of the project on cultural heritage.*

*9. The Borrower will avoid impacts on cultural heritage. When avoidance of impacts is not possible, the Borrower will identify and implement measures to address impacts on cultural heritage in accordance with the mitigation hierarchy. Where appropriate, the Borrower will develop a Cultural Heritage Management Plan.*

*10. The Borrower will implement globally recognized practices for field-based study, documentation and protection of cultural heritage in connection with the project, including by contractors and other third parties.*

*18. Archaeological sites comprise any combination of structural remains, artifacts, human or ecological elements and may be located entirely beneath, partially above, or entirely above the land or water surface. Archaeological material may be found anywhere on the earth's surface (FN 7), singly or scattered over large areas. Such material also includes burial areas, human remains and fossils.*

*Footnote 8. The burial areas referred to in Paragraph 18 are those unrelated to current populations living in the project area. For more recent burial places connected directly to Guidance Note – ESS8: Cultural Heritage project-affected parties, appropriate mitigation measures will be identified pursuant to paragraphs 8 and 9 through consultations with such parties.*

#### 14.1.2.2 European Bank for Reconstruction and Development (EBRD)

The EBRD's Environmental and Social Requirement[57] (ESR) 8 for Cultural Heritage sets a framework for clients to protect cultural heritage through the avoidance, and where avoidance is not feasible, the reduction and mitigation of any potential adverse impacts by EBRD-financed activities, in an appropriate and proportionate manner.

*9. The client will seek to avoid adverse impacts on cultural heritage during the project lifecycle. Where impacts on cultural heritage cannot be avoided, the client will identify and implement mitigation measures to address the impacts in line with the mitigation hierarchy, which may involve the rerouting or changing the physical footprint of the project, in situ conservation and rehabilitation, the relocation of cultural heritage, documentation and cataloguing, and the transmission of cultural heritage-related knowledge. Mitigation measures should take into consideration the specific requirements pertinent to each type of cultural heritage in accordance with paragraphs 10-17 of this ESR.*

[57] EBRD, 2024, Environmental and Social Requirement 8
https://www.ebrd.com/content/dam/ebrd_dxp/assets/pdfs/environment---sustainability/environmental-and-social-policy-esp/esp-2024/EBRD-Environmental-and-Social-Policy-2024-ESR-8.pdf

*10. Archaeological sites comprise patterned physical remains of past human activity and may involve any combination of structural remains, artefacts and human or ecological elements that may be located entirely beneath, partially above or entirely above the land or water surface. The client will carry out desk-based research, including by consulting national and international registries and lists, consider the high probability of past human activity and conduct field surveys to document, map and investigate archaeological remains. The client will document the location and characteristics of archaeological sites and material – including burial sites, human remains and funerary items – identified during the project lifecycle and provide such documentation to the national regulator or relevant cultural heritage authorities.*

*Guidance Note, 2025, Annex 3: Assessment techniques: Documentation of sites of intangible heritage significance, relocation of graves/shrines according to protocols agreed through meaningful consultation.*

*22. At an early stage of the environmental and social assessment, the client will identify whether any cultural heritage is likely to be adversely affected by the project and assess the likelihood of any chance finds. In doing so, the client will consult with the relevant authorities, experts, local communities and other key stakeholders, including users and custodians of the cultural heritage, as appropriate.*

*23. The assessment process will characterise the baseline and the potential risks and impacts of the project on cultural heritage. The extent of the assessment will need to be sufficient to characterise the potential significance, likelihood and severity of the impact and take into account the views of the regulator, users and custodians of the cultural heritage, heritage expert(s) and other key stakeholders. To address the identified impacts on cultural heritage, the client will develop and implement a CHMP that should include mitigation measures developed in accordance with the mitigation hierarchy and use good international practice (GIP).*

*24. The client will engage cultural heritage expert(s) to support the baseline survey, data and documentation collection, the definition of the significance of the cultural heritage, and preparation of the CHMP. It will also ensure the application of requirements to contractors and other third parties.*

**Lender Guidance on intangible Heritage, especially in relation to burials**

Funerary sites can potentially fall under both categories of tangible and intangible heritage. Where burials/graveyards have no direct connection with contemporary communities - which is increasingly likely the older they are - they can be regarded as being of tangible heritage significance only. Where there are communities that identify a connection with a burial or burials - whether it be a direct ancestral link or a spiritual connection - they also have intangible significance. This is an important distinction under IFI guidance which has implications for how any impacts should be managed.

IFI guidance refers to the importance of applying the mitigation hierarchy when project sites contain cultural heritage, including burial sites. This involves the avoidance or minimisation of impacts wherever possible.

Where avoidance is not possible, IFI standards require the implementation of field-based study and documentation using '*internationally recognised practices*' (IFC PS8, paragraph 6).

The importance of 'meaningful consultation' with affected communities in the context of the removal of significant cultural heritage - including burials - is referred to in most IFI standards. EBRD guidance states that the following approaches should be included in the meaningful consultation:

- Using engagement tools appropriate to the social, political and cultural context;
- Consultation early in the project cycle (including minority groups, women etc);
- Integration of community engagement with other aspects of stakeholder engagement where possible;
- Systematic documentation of responses.

Through meaningful consultation it should be possible to establish which sites retain intangible significance for affected communities. Where this is the case - and the removal of burials is considered essential for the development of the project - the technique of removal and the storage/relocation of human remains should be agreed in advance with the descendant/affected communities. This should be documented through a written agreement/method statement.

Where no intangible significance can be associated with burial sites, they can be treated as archaeological remains in line with the guidance set out in national legislation and IFI guidance. The details of the documentation, analysis and reporting methods to be applied for both tangible and intangible cultural heritage should be set out in a Cultural Heritage Management Plan, normally prepared after the completion of the EIA. EBRD guidance states that:

> *"The client will engage cultural heritage expert(s) to support the baseline survey, data and documentation collection, the definition of the significance of the cultural heritage, and preparation of the CHMP. It will also ensure the application of requirements to contractors and other third parties."* (EBRD, ESR8, paragraph 24).

### 14.1.3 International Treaties and Conventions

Uzbekistan has signed and ratified several international conventions on the topic of heritage, including:

- The Convention concerning the Protection of the World Cultural and Natural Heritage, Paris (1972)
- Convention on Biological Diversity (1992)
- Convention for the Safeguarding of the Intangible Cultural Heritage, Paris (2003).

Also potentially applicable are the UNESCO World Heritage Convention (1972) which provides guidance on identifying, protecting, conserving, presenting, and transmitting cultural and natural heritage of outstanding universal value to future generations; and implementing effective legal, scientific, technical, administrative, and financial measures for heritage protection. The UNESCO Convention for the Safeguarding of Intangible Cultural Heritage (2003) advocates for safeguarding, preserving, documenting, promoting, and revitalising intangible cultural practices, traditions, and expressions; and raising awareness at local, national, and international levels about intangible heritage.

## 14.2 Scoping & Methodology

This section provides the outcome of an assessment of likely significant effects upon the Cultural Heritage when the Project enters construction phase. The assessment considers potential impacts on physical heritage - buried heritage assets (archaeological remains), and above ground heritage assets (e.g. buildings, structures, monuments and areas of heritage interest), as well as intangible heritage.

The cultural heritage assessment was carried out using a combination of desk-based research, field investigations, stakeholder consultations, and impact analysis, in accordance with the requirements of the IFC Environmental and Social Standard 8 (ESS8) on Cultural Heritage, EBRD PS8 and ADB ESS8.

For each type of activity, the following actions have been completed:

**Desktop Review**

- The consultation of extant archaeological and historical research literature, historic maps and land use plans;
- Search for legally protected monuments, archaeological zones, or landscapes of cultural significance in or near the project area;
- Some archival research conducted by the National Archaeology Center of the Academy of Sciences of the Republic of Uzbekistan

**GIS and Spatial Analysis**

- The analysis of satellite imagery by professional archaeological heritage consultants and a GIS expert to map the Project footprint in relation to known cultural heritage features.

**Preliminary Survey**

- A non-systematic walkover survey of the Project area conducted by the National Archaeology Center of the Academy of Sciences of the Republic of Uzbekistan, focusing predominantly on some of the features of potential cultural heritage significance identified in the NACO “Appendix E: Assessment Cemeteries and Heritage Sites for Site 4” (herein “NACO report”) as part of the site options analysis;
- Photographing of visible cultural features and the sampling of diagnostic ceramic sherds were taken by the above-mentioned agency, to supplement photos already available in the NACO report;
- Verification of some of previously documented heritage assets in the NACO report and assessed their current condition.

**Stakeholder Engagement**

- Engage with local authorities, stakeholders and community representatives;
- Collation of local knowledge and community input on sites of historical, cultural, or spiritual significance, including potential intangible heritage;
- Documentation of concerns related to potential impacts and access restrictions.

**Preliminary Impact Assessment**

- Assessment of the potential direct and indirect impacts of the project on identified heritage assets;
- Assessment of the scope for gathering additional information to help with mor detailed impact assessment.

**Preliminary Mitigation strategy and outline monitoring measures**

- Proposal of an outline mitigation and management measure to avoid or minimise impacts;
- Recommendation of the development of a Chance Finds Procedure.

## 14.3 Sensitive Receptors

Cultural heritage receptors that could be potentially affected during the construction process for the Project are shown in following Table 14-1.

**Table 14-1 Potential Cultural Heritage Receptors**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Tangible Cultural Heritage (Archaeological remains and standing buildings) | **High** | Assuming that the Project will be unable to integrate cultural heritage features into the design, any monuments of cultural heritage value could be impacted during construction. This poses a diminishment of knowledge of cultural heritage and direct and indirect impacts to communities, socio-political identities and entities, including the nation State; as well as to any potential benefits from cultural heritage economies, such as tourism |
| Intangible Cultural Heritage (Living heritage traditions) | **High** | The displacement of communities and destruction and/or removal of assets associated with community activities and traditions poses a direct threat to the continuity of localised knowledge and long observed traditions; as well as emotional distress for individuals and families. |

## 14.4 Observations and Baseline Conditions

### 14.4.1 Geographical Context (see Figure 14-1)

The Project site lies on the fertile alluvial basin of the Chirchiq valley, with the Chirchiq river running in a south-westerly direction, some 2km west of the western-most edge of the Project's site boundary and just within the Project search area. Some c. 30km to the east and c. 35km to the southeast, across the alluvial plains, rise the foothills of the south-westerly extremity of the Pskem Mountain Range (the western extremity of the Tian Shan range), which defines the line of the contemporary Uzbekistan / Tajikistan frontier in this area. The longest river in central Asia, the Syr Darya river runs off the Pskem Mountains travelling in a north / north-westerly direction, passing c. 40km south-west of the site boundary at its nearest point, to which the River Chirchiq is a major tributary joining it at Yangi Chinaz. The climate is cold semi-arid as is typical of this kind of steppe environment (BSk Köppen classification). The physical geography has created a funnelling effect on human movement across this region from east to west and north to south, creating routeway 'crossroads' and a concentration of human settlement and cultural activity along the Chirchiq valley and around the Tashkent oasis.

### 14.4.2 Historical and Archaeological Context

#### 14.4.2.1 Prehistory

In the Middle Palaeolithic (up to c. 50,000 years ago) and Upper Palaeolithic (from c. 50,000 – c. 10,000 years ago) - through the last glacial period - there is evidence of human movement in the area close to Tashkent, which would have been facilitated through windows of interstadial episodes known in this part of central Asia.[58] One of the most significant sites for evidence of prehistory in central Asia - Obi-Rahmat cave[59] - is located in the Pskem mountains, close to the source of the Chirchiq river.

[58] Li, F., Vanwezer, N., Boivin, N., Gao, X., Ott, F., Petraglia, M., Roberts, P. 2019. *Heading north: Late Pleistocene environments and human dispersals in central and eastern Asia.* PLOS ONE 14(5).
[59] On this, see for example: Suleimanov, R. Kh. 1972. *A Statistical Study of the Culture of the Obi-Rakhmat Shelter.* Tashkent: Fan (in Russian).
Krivoshapkin A.I., Kuzmin, Y.V., Jull, A.J.T. 2010. 'Chronology of the Obi-Rakhmat Grotto (Uzbekistan): First Results on the Dating and Problems of the Paleolithic Key Site in Central Asia.' *Radiocarbon*, 52(2):549-554.

#### 14.4.2.2 Bronze Age / Protohistory

Research in 1940s carried out during the construction of the Tashkent Canal near the Project site, led by A.I. Trenozhkin, leading to archaeological excavations at Burgulliksoy, in the Tuyabugiz reservoir area, and the discovery of so-called Burgulik culture, which is attested throughout the area of Project development.[60] This Bronze-Age culture (c. 9th-6th century BC) was engaged in agriculture, weaving, and metallurgy, as attested, for example, at Shashtepa near southern Tashkent, some 13km north of the Project site.[61] Their building techniques is characterised by the use of mudbricks, some of which - over time - have deflated into tell-like structures, or mounds, known as “tepa”. There is evidence of irrigation in the Chirchiq valley, in the vicinity of Tashkent and the Project site, from the 4th century BC.[62]

#### 14.4.2.3 Early Urban Chach/Shash culture (2nd century BC – 7th century AD)

The site of Shashtepa also provided a stratigraphic dating context for the arrival of the Kavunchi culture, from the 2nd century BC to the 5th/6th century AD, characterised by a semi-nomadic lifestyle and Kurgan burial mounds. Chinese chronicles from the 2nd century BC provide the earliest written references of a settlement in the Chach or Shash (Tashkent) oasis, signalling a settled urban presence linked to broader Central Asian networks. During this period the area was inhabited by Sogdian and early Turkic groups, which seem to exhibit a blend of Iranian- and Turkic-linguistic cultures.

#### 14.4.2.4 Islamic Conquest & Medieval Era (8th – 13th centuries AD)

Arab forces entered the Shash region in the early 8th century, marking the beginning of the Islamic era, which introduced new religious, administrative, and cultural frameworks; and by the 9th–10th centuries, Tashkent (then often referred to as Binkent) became a significant trading and craft centre under Muslim polities like the Samanid state. The Mongol invasions in the early 13th century caused widespread destruction across Central Asia, including the Tashkent region, before eventual re-establishment of urban life.[63] Zangi-Ata Sufi Mausoleum & Complex (c. 13th–19th centuries) centred around the shrine of Sheikh Ay-Khodja (Zangi-Ata, 12th–13th century) with later architectural additions (mosque, madrasa, minaret) up to the 19th century, is located c.15 km to the southwest of Tashkent and c.9km to the northwest of the Project site.

#### 14.4.2.5 Timurid & Post-Timurid Periods (14th – 16th centuries)

After Mongol domination, the region grew again under later powers, including the Timurid dynasty from the late 14th century, which also influenced religious architecture and patronage in the region. In this era, regional religious and architectural complexes developed in Tashkent such as the Hazrati Imam complex (16th century and later) and the Qaffol Shoshi mausoleum, built in 1542 for the renowned Imam Abu Bakr al-Kaffal ash-Shashi.

#### 14.4.2.6 Local Dynasties & Khanates (17th – early 19th centuries)

The independent Tashkent state (1784–1808) emerged in a period of internal strife among four urban quarters before becoming part of the Kokand Khanate in the early 19th

[60] Terenozhkin, A. I. 1950. ‘Sogd i Chach.’ In: *Kratkie soobshcheniya instituta istorii material'noi kul'tury 33*, 152-169.
[61] For example, see: Filanovich M.I. 2010. *Drevnyaya i srednevekovaya istoriya Tashkenta v arkheologicheskikh istochnikakh.* Tashkent: FAN.
[62] Sala, R. 2003. *Historical survey of irrigation practices in west central Asia.* http://www.lgakz.org/Publications/Publications.html:
[63] On Tashkent Arab/Islamic conquest see, for example: Williams, D. S. M. 1967. ‘The city of Tashkent, past and present’, *Journal of The Royal Central Asian Society* 54, 1; Bol'shakov, O. G. 2010. *Istoriya Khalifata, t. 4: apogey i padeniye*. Moskva: «Vostochnaya literatura» RAN.

century. During this period the city's strategic position in Central Asia's network of khanates remained important, albeit often subordinate to surrounding powers.

#### 14.4.2.7 Russian Imperial Rule (1865 – 1917)

In 1865, Tashkent was seized by the Russian Empire, ending local Kokand rule and integrating the city into Russian Turkestan under colonial administration. Russian rule brought administrative restructuring, new development of "New Tashkent" on the city's east side, and significant change with Russian settlers and new infrastructure (e.g., rail and canal systems) in Tashkent and the surrounding areas, including the area of the Project site.

#### 14.4.2.8 Soviet Era (1917–1991)

After the 1917 revolution, Tashkent became a core urban centre in the Turkestan ASSR and later the Uzbek SSR. Tashkent and areas around became a major evacuation and industrial hub during the Second World War, expanding its population and economic profile under Soviet planning. An earthquake in 1966 destroyed much of the historic core of Tashkent, with significant impact to other villages around and close to the Project site.

#### 14.4.2.9 1991 to the present day

The last 35 years, since the formation of the Republic of Uzbekistan has been marked by rapid development, modernisation and urbanisation, especially in and around the core of the city of Tashkent. This is reflected to some extent in the development area, mainly through changes in farming practice and changes in land use; first from the de-collectivisation of collective farms (*Shirkat) in 1992-1997 into small private and cooperative units, followed by the fragmentation into smaller private units in some places, and then - due to production inefficiencies - the reconsolidation into larger individual farms. This process, although it has led to significant crop diversification, has also caused significant reconfigurations, changes in irrigation systems and land disturbances. This is evident to some extent within the development footprint, where there has been substantial relatively recent bulldozing, land clearing and excavation of new irrigation channels in some areas.*

#### 14.4.2.10 Trade routes (see Figure 14-1)

The region's fertile oasis, fed by the Chirchik River, served as a crossroads for early trade and cultural exchange; likely from at least the late Bronze Age/Early Iron-Age, including route-ways such as the Eurasian Steppe route. Records of the establishment of a trade route are attested during the Han dynasty, running from roughly 206 B.C.E. to 220 C.E., connecting Central Asia to Rome, via natural passes which traverse close to or along the Chirchiq river valley, and via Tashkent. Such trading networks developed in intensity, peaking between 618 and 907 C.E, linking the Tang dynasty with the Abbasid Empire. During this period Samarkand, to the south and west of the Project site, became a crucial hub and then the heart of the Timurid Empire (14th Century); with Tashkent as a significant stopping point.

While the area in the immediate vicinity of the Project site does not feature much in textual sources or archaeological research in the region, it is located at the very intersection of these trading routes and therefore there is a high likelihood of the presence of yet uncovered cultural heritage of significant value in this area. (see Figure 14-1)

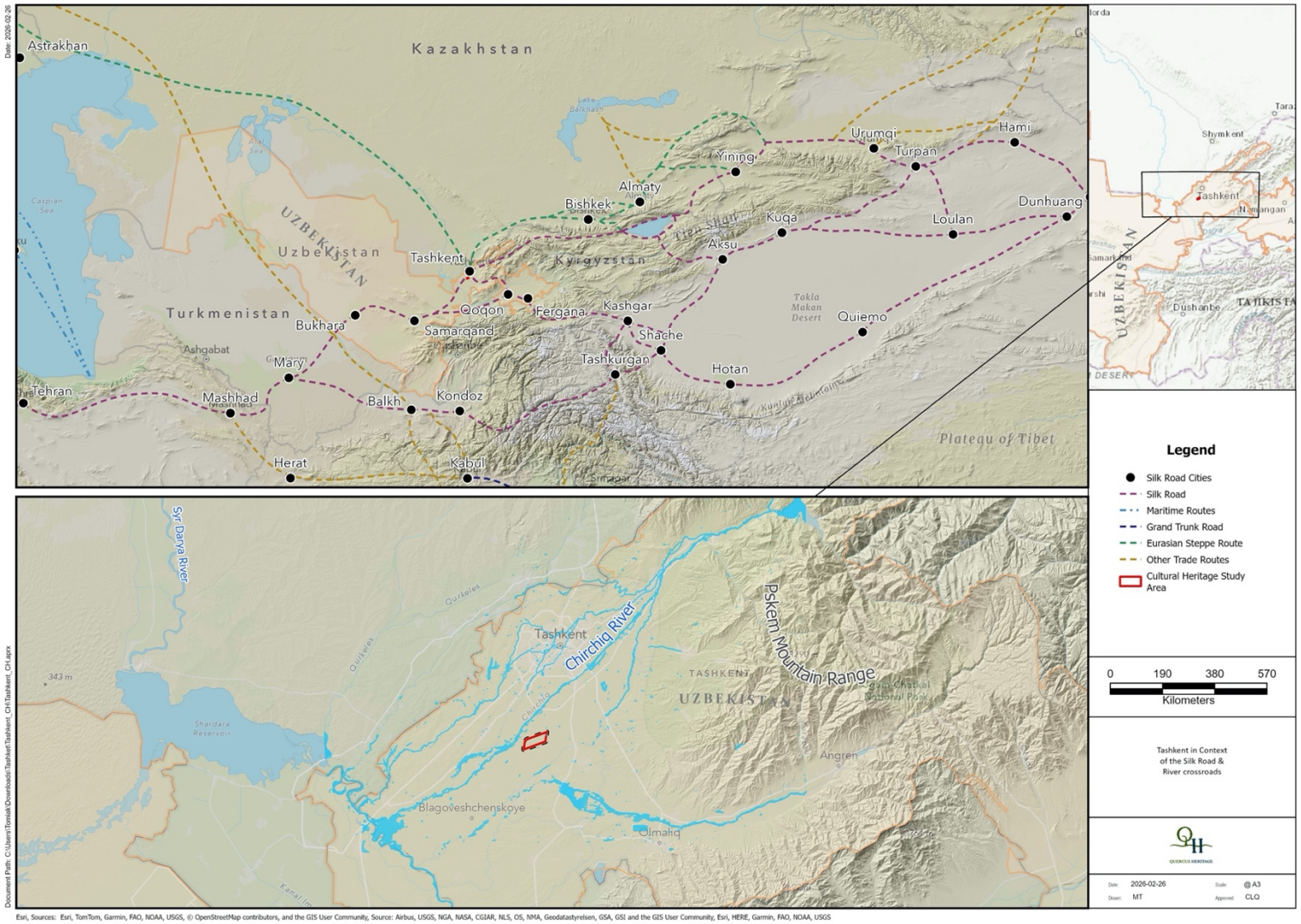



**Figure 14-1 Maps showing geographical context of the Project site (bottom) and relationship to trade routes (top).**

### 14.4.3 Previous knowledge of potential cultural heritage at the Project site

The Project site area does not appear to have been the subject of any systematic archaeological or ethnographic surveys or studies, except for the "Map of Archaeological Monuments of Tashkent Region", compiled in 1973 and updated in subsequent years. This does not identify any archaeological sites within Project boundary. However, surveyors for topographic mapping carried out during the 1940s and the 1950s by the Chief Administration of Geodesy and Cartography were aware to represent any mounds ("tepa" or "tepalik") as archaeological sites.[64] As such, Soviet maps from this period and which are based on these maps note the presence of mounds, as well as other ruins and graveyards within the project site area.

One site, discovered by A.A. Potopov in 1929 is attested 720m north of the Project site boundary (outside the 500m buffer zone included for the purposes of this assessment, but within the broader Project search area), known as "Illiboytepa" and described as a circular mound surrounded by a thick ring wall.[65] (see Figure 14-3).

Preliminary constraints mapping for the Project identified four possible graveyards within the boundaries of the proposed airport site, with a fifth being located immediately outside the site boundary to the east. An initial assessment of these sites was carried out by NACO as part of a site options analysis produced in 2024. This concluded the following about the four graveyard locations (moving from west to east) (see Figure 14-2):

- Location 4: covering an area of c.160m north-south x 60m east-west - ground truthing identified no obvious trace of burials;
- Location 3: a triangular plot of maximum 75m x 50m. Although there are no modern gravemarkers, the presence of multiple depressions suggests that graves may have been removed from this;
- Location 2: an area of c.200m x 80m. It contains a number of mid-twentieth century graves with tombstones within a fenced area, although it is no longer used as an active graveyard;
- Location 5: an area of c.190m x 80m. It is not described in the NACO assessment (satellite imagery suggests that this was similar to the other sites and historic mapping again indicates the presence of a graveyard here in the 1980's).
- Location 1: an area of c.140m x 70m, described in the NACO assessment as an active graveyard, necessitating a recommended shift of the original Project site location 300m westward, to the present Project location.

[64] Mantellini, S., Rondelli, B., Stride S. 2011. 'Analytical Approach for Representing the Water Landscape Evolution in Samarkand Oasis (Uzbekistan)'. In: *On the Road to Reconstructing the Past. Computer Applications and Quantitative Methods in Archaeology (CAA). Proceedings of the 36th International Conference. Budapest, Aprile 2-6, 2008*, Jerem, E., Redő, F. and Szeveréni, V. (eds.), pp. 387-396, Archaeolingua Foundation, Budapest. (p. 389); Rondelli, B. Stride, S., García-Granero, J.J. 2013. 'Soviet Military Maps and Archaeological Survey in the Samarkand Region', *Journal of Cultural Heritage*, Vol. 14, 270-276 (p. 272.).
[65] Potapov, A. A. 1929. Obzor tepe srednego techeniia Chirchika. Arkhiv Glavnogo upravleniia po okhrane pamiatnikov materialnoi kultury Ministerstva kultury UzSSR. Tashkent, d. 96.

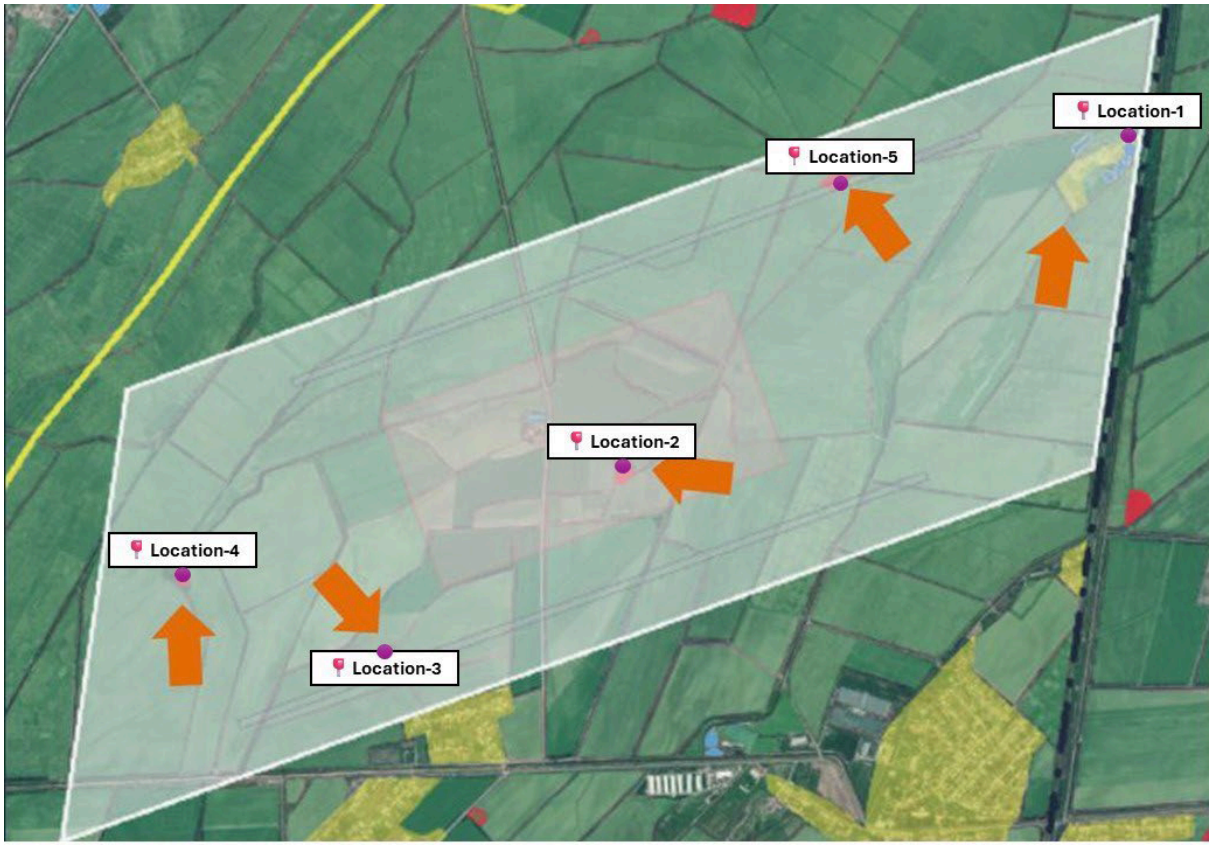



**Figure 14-2 Sites identified in NACO as part of preliminary constraints mapping exercise.**

### 14.4.4 Outcomes of assessment of potential tangible cultural heritage at the Project site

#### 14.4.4.1 Initial observations from Field Survey and Remote Sensing

The field survey conducted by archaeologists from the National Archaeology Center of the Academy of Sciences of the Republic of Uzbekistan (herein "AoS Report 1") which is included in Appendix 8 of the ESIA focused on sites already identified in the NACO report, and some of the concerns raised in the stakeholder consultation; in particular:

Site 1 (Location 4 in the NACO report) - mound & graveyard
Site 4 (Location 2 in the NACO report) - Muslim graveyard
Site 6 (Location 1 in the NACO report) - mound & graveyard

Observations in AoS Report 1 from this survey were as follows:

- Pottery fragments dated mainly to the 16$^{th}$ – 18$^{th}$ centuries were mainly found in irrigated agricultural lands; likely the outcome of secondary displacement through irrigation/drainage;
- No findings within visible undisturbed mound structures;
- Soil layers heavily disturbed by irregular burials (up to 2 m deep);
- Absence of stratigraphic integrity in disturbed areas
- No graveyards still in-use at the three locations.

Based on these observations, the surveyors deemed that there is currently no basis to conclusively classify these mounds as archaeological heritage sites; and that the area consists

of disturbed agricultural lands and relatively recent burial elements, without evidence of significant preserved archaeological complexes. However, the surveyors deemed also that further verification (as outlined in section 1.5.3.) would be necessary to absolutely confirm the presence or absence of archaeological features within the mound structures.

Further to this work, additional desk-based research and remote sensing activities suggested that there may be a further eight sites of potential heritage significance in addition to the total of five sites identified in the NACO report.

#### 14.4.4.2 Further Survey Investigations

To verify the status of the total thirteen sites identified as potential cultural heritage, two further surveys were conducted and reported, as follows:

- Report on Archaeological Monitoring and Field Research, conducted by the Academy of Sciences of The Republic of Uzbekistan, Institute of Anthropology (National Centre of Archaeology), 29 April 2026 (Herein “AoS Report 2” included in Appendix 8 of the ESIA)
- Cultural Heritage Review, conducted by Quercus Heritage Ltd, 17 July 2026 (Herein “CHR Report”, included in Appendix 8 of the ESIA)

**Academy of Sciences Report 2 (“AoS Report 2”)**

The AoS Report 2 sunk test-pits (shurfs) at four sites (out of the thirteen potential sites previously identified). This work established the ground in these areas as consisting of “*complex, often disturbed profiles*” with three out of four of them yielding significant mixed-period ceramic assemblages, which is suggestive of the presence of significant settlement in these areas, potentially extending to the early medieval period. Three of the four sites (Sectors A, D, and E) were identified in this report as late historical or modern local burial grounds. Community consultation work has corroborated these as a Muslim graveyard, a Korean graveyard and a Muslim children’s graveyard –all recommended for relocation. Community consultation also, however, also indicated in contradiction to the AoS Report 2 which reported that the site represents “*an entirely natural landform or an accumulation resulting from agricultural activities*” that Site 5 (‘Sector B’) is also a Korean burial place. Although this report concluded that the sites investigated were "*lacking primary contexts or structural domestic components*” due to the disturbance of land from farming and burial activities, the location and depth of text-pits on the outer periphery of the sites were not adequate to establish conclusively that there is no in-tact archaeological remains at more central and deeper areas of the mound structures.

**Cultural Heritage Review Report (“CHR Report”)**

A site visit of nine out of the thirteen sites identified as potential sites of cultural heritage significance, focusing on the sites within the development footprint. The survey sought to visually rule out or verify the potential for the presence of assets of cultural heritage sensitivity and to review the conclusions of the AoS Reports 1 and 2. The report recommended that three of the sites (Sites 1, 2 and 4) should be subject to pre-construction investigation for potential tangible heritage and three outside the footprint but within the buffer zone (Sites 3, 6 and 11) should be flagged in the Cultural heritage Management Plan for their potential sensitivity during construction. The recommendations of this report sit alongside the Roadmap and Methodological Plan for the Burial Relocations which recommends the burial relocation from four sites (Sites 1, 2, 4 and 5).

The following section itemises the location and nature of all sites which may be of potential cultural heritage significance.

### Potential sites of tangible cultural heritage significance

A total of seven sites of potential cultural heritage significance have been identified, as itemised in the gazetteer (Table 14-2). Figure 14-3 shows their location in relation to the Project site.

For the complete assessment of all 13 potential cultural heritage sites, including site descriptions, findings and recommended categorisation, refer to the CHR report provided in Appendix 8 of the ESIA.

This section provides a summary description of each site. Notably there is little conclusive information available at this stage to enable any reliable dating of many of the sites for which purpose more detailed survey is required. During survey walk-over of the site by the Archaeology Centre, stray finds of ceramic fragments dated to between the sixteenth and twentieth century were found, likely displaced through alluvial wash and ploughing activity.

**Table 14-2 Gazetteer of sites identified of potential cultural heritage significance**

| Site ID | Name | Feature Type | X | Y | Site ID in Other Reports (for cross-referencing) |
|---|---|---|---|---|---|
| 1 | Mound feature of possible historic significance with twentieth century Korean graveyard. | Mound & Graveyard | 515473.24 | 4548166.61 | NACO - Location 4.<br>AoS Report 1 - Mound 1<br>AoS Report 2 - Sector D |
| 2 | Mound feature of possible historic significance with twentieth century Muslim child graveyard. | Mound & Graveyard | 519041.34 | 4550318.81 | NACO - Location 5.<br>“AoS Report 1” - N/A<br>“AoS Report 2” - Sector E |
| 3 | Twentieth century Russian-Korean graveyard | Graveyard | 520697.72 | 4548560.55 | NACO - N/A<br>AoS Report 1 - N/A<br>AoS Report 2 - N/A |
| 4 | Twentieth century Muslim Graveyard on mound of possible historic significance. | Mound & graveyard | 517883.11 | 4548762.07 | NACO - Location 2<br>AoS Report 1 - Muslim Graveyard 1<br>AoS Report 2 - Sector A |
| 5 | Twentieth century Korean Graveyard on small mound | Mound & graveyard | 516591.14 | 4547743.86 | Land Use Data Provided by Client |
| 6 | Recent and active Graveyard | Graveyard | 520711.03 | 4550581.09 | NACO - Location 2<br>AoS Report 1 - N/A<br>AoS Report 2 - N/A |
| 11 | Railway | Railway | 520571.78 | 4549275.56 | NACO - N/A<br>AoS Report 1 - N/A<br>AoS Report 2 - N/A |

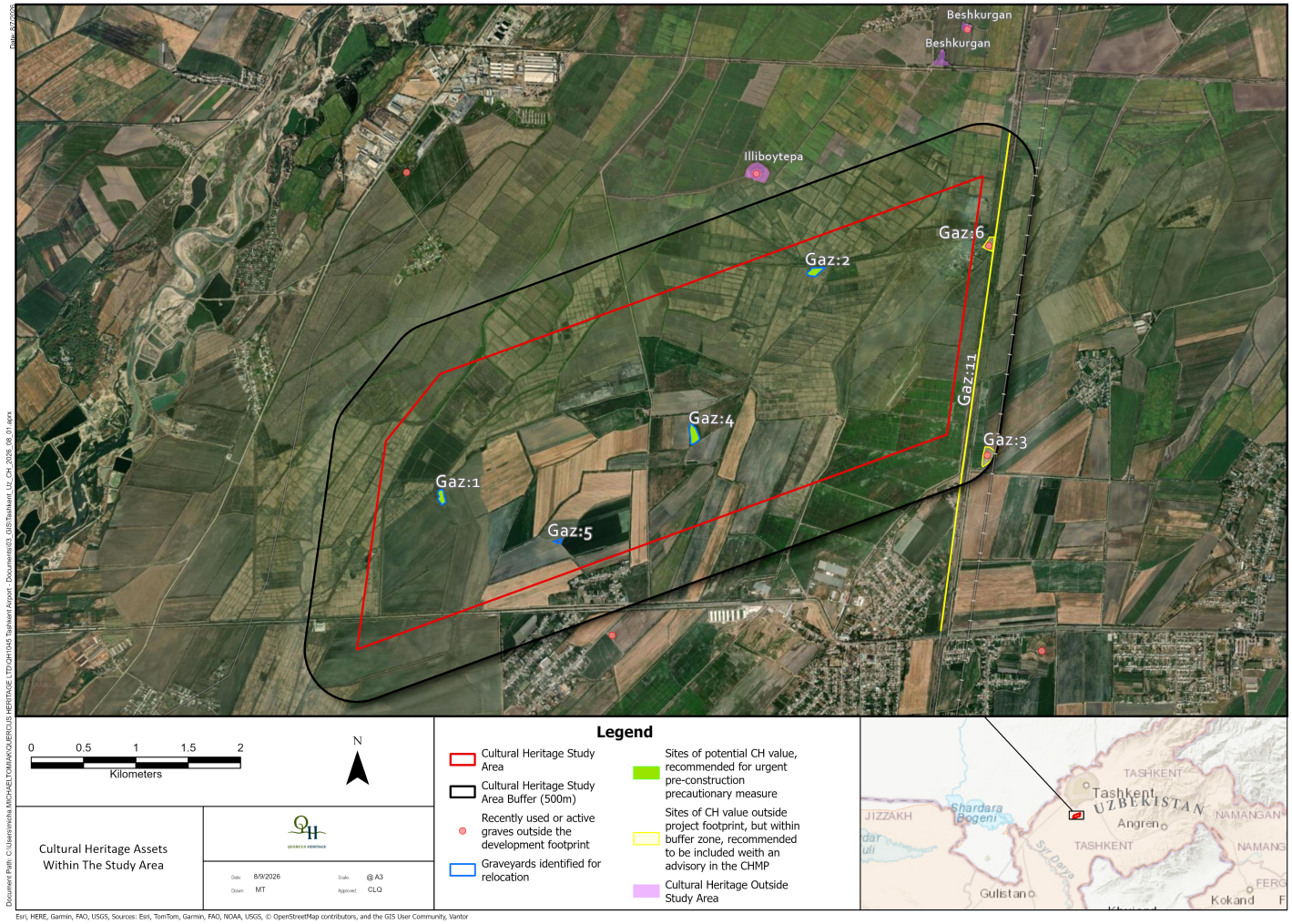



**Figure 14-3 Suspected Cultural Heritage sites identified within the Project site, including a 500m buffer**

**Site 1: Mound feature of possible historic significance with twentieth century Korean graveyard**

A significant mound formation with dimensions of between 200m x 50m and c.250m x 140m (between c. 1.2ha and 3.5ha), with a maximum elevation of between 3 and 5 meters. Three hand-dug test-pits have been excavated in the mound. All have ceramics of mixed forms and ages associated with them. The AoS Report 2 documents that an ashy feature (probably a hearth) was uncovered at the upper level of Pit 1 but not excavated or investigated further. It is possible that there is some asset of archaeological interest at this location which has not been ruled out. Based on visual inspection of photos in the AoS Report 2, pottery found on this site appears to range from the 13th-15th century and some possibly from the first millennium CE. Given the quantity and the range (domestic glazed/unglazed wares) it seems likely that there is a settlement here or nearby. While it is possible that the mound represents disturbed archaeological features and redeposited material lacking original contexts as suggested in the AoS Report 2, the absence of still in-tact features and the probable original source or location of the archaeological deposits have not been positively confirmed.

Community consultation has indicated that there are approximately 45 Korean burials at this location, dated up to 1960; and that relocation to another graveyard has been agreed.

**Figure 14-4 Site 1: Graveyard on mound (location 4), showing full extent of site (blue outline) in contrast to currently mapped extent (yellow outline).**

**Figure 14-5 View south from the top of Site 1, showing the relative elevated position.**

**Site 2: Mound feature of possible historic significance with twentieth century Muslim child graveyard.**

A mound of between 50m x 50m and 70m x 50m (between 0.25ha and 0.35ha) with an elevation of up to 5m above the surrounding land, and some possible subsurface rectilinear and circular structures appear to be visible in some satellite imagery. Test pits suggest several defined layers and a possible lowest level of laid ceramics (see AoS report pg 46) and stone. Some of the ceramics are also visible scattered on top and around the mound and some of them may belong to the first half of the first millennium CE. This site is close to the nationally scheduled site of "Elliboytepa" (Chardara) just to the north which likely had a large suburban occupation and therefore may be related. The possible presence of significant historic settlement and/or association with the registered monument to the north has not yet been properly ruled out.

Community consultation has indicated that there are approximately 40 Muslim child burials at this location, dated up to 1984; and that relocation to another graveyard has been agreed.

**Figure 14-6 Site 2: Mound feature and Muslim child graveyard with cross-section**

**Site 3: Russian-Korean Graveyard**

This feature lies outside the Project development area, but within the 500m buffer zone. The site is known as the burial place of a Korean community who are no longer present and therefore the graveyard is thought to be no-longer in-use. Notably it sits on a mound which rises to 4m at its highest point above the relatively flat surrounding landscape. It is possible that this location represents an earlier settlement or burial location, which has been re-used as a graveyard in the twentieth century. Due to the site's potentially exposed location close to the development footprint, it is recommended that some measures should be taken as part of the CHMP to clearly mark and delineate this site during construction activity.

**Figure 14-7 Site 3: Russian-Korean** Graveyard **with cross-section**

**Site 4:**

**Twentieth century Muslim graveyard on mound of possible historic significance.**

Mound formation which rises to at least 2m above surrounding fields with approximately 100 100 Muslim burials, for which relocation has been agreed. At least five of the graves are marked clearly, two with inscribed headstones which give the dates 1954 and 1965 and one which is surrounded with wrought iron fencing with no headstone or inscription. According to community consultations, the graveyard is thought to have fallen out of use in 1978.

The graveyard is set on very uneven raised ground and the presence of many small mounds or 'Kurgans', which may indicate successive use as a burial site and/or other artificial formation of potential archaeological interest (see left photo, Figure 14-9). The pottery retrieved from two test pits appear to span the 10th-15th centuries CE and some moulded architectural tile fragments were observed in the CHR Report. Given that there is a reasonable amount of ceramics and evidence of other material culture much of which would not typically be associated with cemetery sites, it is possible that there is a settlement of historic interest in the area and this has not yet been ruled out with any certainty.

**Figure 14-8 Site 4: Twentieth century Muslim graveyard on mound**

**Figure 14-9 Burials at Site 4. Note small mounds in the background of left photo.**

### Site 5: Twentieth century Korean Graveyard on small mound.

This site sits on the southwestern quadrant of the Project area was not previously identified in the NACO constraints mapping. It features a mound of approximate triangular shape, c.55m on two sides and c. 75m on one side, rising at the centre to at least 2m above the surrounding land. The surface of the mound seems to include numerous kurgan-like circular mounds and possible more recent burials, and historic maps confirm that this was formerly used as a graveyard. Community consultation established that this is the site of approximately 25 Korean burials, and was in use until 1960. Relocation to another graveyard has been agreed.

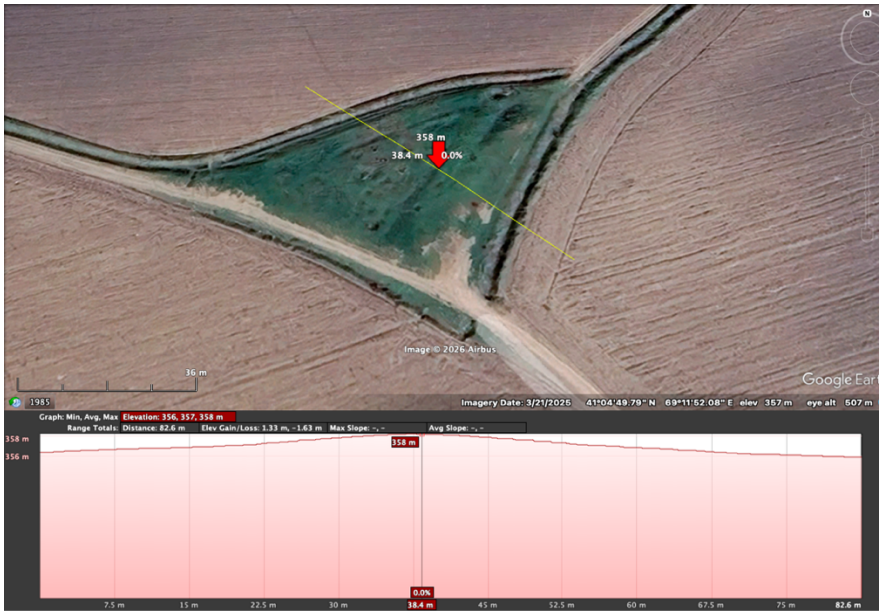



**Figure 14-10 Site 5: Graveyard on mound**

**Site 6: Recent/current Graveyard (location 1)**

This graveyard is located just outside the Project area, but within the 500m buffer area, following the NACO report recommendation for the Project site to be moved some 300m westward "to prevent any disturbances to the railway line, the service road, and to maintain the sanctity of the graveyard itself." The graveyard, which is thought to be still in use (this is contested and not verified), appears to sit in an area elevated by c. 2m in relation to the surrounding ground level. This likely artificial feature may, once again, suggest either successive use of the site or some other underlying archaeology. Due to the site's potentially exposed location close to the development footprint, it is recommended that some measures should be taken as part of the CHMP to clearly mark and delineate this site during construction activity.

**Figure 14-11 Site 6: Recent** Graveyard **(location 1) with the cross-section profile**

**Figure 14-12 Site 6: Entrance (left) and gravestones (right) at graveyard enclosure**

**Site 11: Railway**

The railway line to the east just outside the Project development area but within the buffer zone. As noted for site 6, the site of the Project was in-part moved to avoid impact to the railway line as well as a graveyard. The railway line may be considered of cultural heritage value, if it was part of the original nineteenth or early twentieth century railway building programme. Notwithstanding that the railway line is largely fenced, and construction works access will inevitably avoid this feature, it is nonetheless recommended that this should be noted as a potential cultural heritage asset in the CHMP.

### 14.4.5 Consultations on tangible and intangible heritage

Extensive consultations were conducted with numerous governmental, non-governmental and community stakeholders concerning their awareness of the presence of tangible and/intangible cultural heritage.

Groups, entities and individual consulted included:

- Academy of Sciences, Institute of Archaeology
- Cultural heritage agency
- Landscape Department
- Tashkent Regional Main Department of Tourism and Cultural Heritage
- Tashkent Regional Department of the Committee for Religious Affairs
- Tashkent Regional Representation of the Spiritual Administration of Muslims of Uzbekistan
- Khokimiyat
- Religious Leaders (local imams and orthodox church representatives)
- Community leaders and representatives
- Yangiyul makhalla, Urtachirchik district (focus group, mixed)
- Surum makhalla, Kuychirchik district (focus groups, mixed and women)
- Tarakkiyot makhalla, Urtachirchik district (focus group, mixed)
- Kushek makhalla, Kuychirchik district (focus group, mixed)
- Beruniy makhalla, Kuychirchik district (focus groups, mixed and women)
- Do’stlik makhalla, Kuychirchik district (focus group, mixed)
- Khalkhabad makhalla, Urtachirchik district (focus groups, mixed and women)
- Sergeli makhalla, Kuychirchik district (focus groups, mixed and women)
- Urtachirchik district, “Khalkobod” MFY - Makhalla Chairman
- Khalkood MFY – Local Orthodox Church caretaker
- Khalkobod MFY – Retired Priest and Graveyard worker

- representative of Surum Makhalla in Kuyichirchik district

Responses received during Focus Grouped Discussion (FGDs) from different makhallas in the region are presented in following tables.

**Table 14-3 FGD Guide Part 1 – Tangible and Intangible Cultural Heritage**

| Topic | Questions | Beruniy makhalla, Kuychirchik district | | Do'stlik makhalla, Kuychirchik district | Khalkhabad makhalla, Urtachirchik district | | Sergeli makhalla, Kuychirchik district |
|---|---|---|---|---|---|---|---|
| | | Responses from Mixed Group | Responses from Women Group | Responses from Mixed Group | Responses from Mixed Group | Female Group | Responses from Mixed Group and Female Group |
| **Tangible Cultural Heritage** | Are there any old buildings or ruins within the Toshkent Airport development area? If yes, please provide details.<br><br>Have any objects of archaeological interest (e.g., pottery, tools, coins, jewelry) been found in the area? If yes, please provide details.<br><br>Have any archaeological surveys or excavations been conducted within the proposed airport site?<br><br>Do you currently have - or are you aware of any government or non-governmental bodies who may have - any archaeological information or data[66] within the boundary of the proposed development of Toshkent Airport, or within a 1km zone around the proposed site? | No old buildings, ruins or archaeological finds reported within Beruniy or the airport development area. No awareness of surveys or data held by government/NGO bodies. | Women did not report historic buildings, ruins or archaeological findings within Beruniy mahalla. There was no mention of local structures of particular historic or architectural significance. Likewise, they did not identify local Graveyards as directly affected by the airport project, in contrast to other mahallas located in or near the red zone.<br>Given that Beruniy is not included in areas of expected demolition, women's concerns about cultural heritage are more general and relate to broader fears of potential future resettlement rather than to specific tangible heritage at immediate risk. | During focus group discussions, respondents did not report the presence of tangible cultural heritage sites within the mahalla, such as historical buildings, monuments, religious or archaeological sites with official protected status. The mahalla's development is primarily residential and functional, including houses, outbuildings, schools, and kindergartens. Residents view these sites as part of everyday infrastructure, not as elements of cultural heritage. Given the airport project's distance from the mahalla and the absence of planned construction work within the community, respondents do not expect the project to have a direct or indirect impact on tangible cultural heritage sites. | The focus group did not identify historic buildings or ruins within the development area, but provided important information on Graveyards, which are both tangible heritage and central to cultural and religious practice. Four Graveyards have fallen within the airport construction area, with only one remaining functioning. A new cemetery has been opened but does not yet operate.<br>Religious authorities (muftis) visited and approved the demolition of the affected Graveyards, stating that they had been opened long ago and could now be removed. The chief mullah was formally notified not to conduct further burials there. While this provides a religiously sanctioned framework for relocation, it also indicates that graves, as tangible cultural heritage, are being directly impacted by the project.<br>No information was provided about archaeological finds (such as pottery, tools, coins or jewelry) or formal archaeological surveys within the project site, nor about organizations holding archaeological data. | Women did not report specific old buildings or ruins in the development area, but they, like other residents, are directly affected by changes to Graveyards. Four Graveyards are now within the airport construction area; only one remains functioning. A new cemetery has been opened but is not yet in use, so women must currently accompany relatives to another mahalla (Tarakkiet) for burials *(Note: We checked back with Makhalla Chairman, he stated that another cemetery was mentioned and 4 Graveyards within airport boundaries are not used, however this is not the first time we hear that one of the graves were used until recent).*<br>Women described how religious leaders (muftis) visited and approved the demolition of the affected Graveyards, stating that they were old and could be removed. Nonetheless, this process has deep emotional implications, particularly for women who often carry the burden of caring for graves and conducting commemorative practices. | There are no registered archaeological sites or excavations within the mahalla. There are monuments and graveyards that require maintenance and preservation.<br>No ruins/artifacts/surveys in area/1km buffer; 2 monuments need repair. No data holders known. |
| **Intangible Cultural Heritage** | Are you aware of any intangible cultural heritage: If so, can you or do you know anyone who can provide further details? The kind of practices may include any of the following activities:<br>religious or 'folklore' practices | Strong emphasis on community mutual assistance as core intangible heritage, reinforced by long-term residency ("one family"). No specific religious, folklore or traditional practices detailed. | The women's discussion from Beruniy did not focus on intangible cultural heritage such as religious practices, folklore, or traditional routes and crafts. However, their references to strong neighborly relations, | The mahalla's intangible cultural heritage is represented primarily by strong traditions of mutual assistance, collective decision-making, and social solidarity. Respondents repeatedly emphasized that the | The focus group did not report specific intangible cultural heritage practices (such as folklore, pilgrimage routes, traditional food production sites or specific building techniques) within the immediate vicinity of the project. However, the closure | In this women's discussion, intangible cultural heritage was reflected mainly through references to religious practices and burial traditions. There is currently no functioning mosque in the mahalla: the previous mosque was closed, leaving | The community maintains traditional forms of agriculture, family, and religious practices. There are active and inactive graveyards, including a Russian cemetery. No sacred sites or ethnographic research have been |

[66] Reports and/or publications arising from any academic scholarly research within the area or close vicinity or Information held in any form collected and/or archived by any individuals, local communities or government or non-government agencies

| Topic | Questions | Beruniy makhalla, Kuychirchik district | | Do'stlik makhalla, Kuychirchik district | Khalkhabad makhalla, Urtachirchik district | | Sergeli makhalla, Kuychirchik district |
|---|---|---|---|---|---|---|---|
| | | Responses from Mixed Group | Responses from Women Group | Responses from Mixed Group | Responses from Mixed Group | Female Group | Responses from Mixed Group and Female Group |
| | Burial and ancestral commemorative locations and practices. Traditional paths, routes, or pilgrimage routes<br>traditional food-production places and traditions<br><br>Traditional agricultural, land, and animal husbandry practices, including nomadic or transhumance methods<br>Traditional building techniques<br><br>Traditional hunting, sports, or athletic practices (subsistence, recreational, educational, or competitive)<br>Traditional arts, music, or performance-based practices (recreational, ritual, financial, or educational)<br><br>Do you have any information about the past and/or current use of graveyards[67] by people within your community or any other communities within the Toshkent Airport development area?<br><br>Are you aware of any ethnographic surveys conducted within the airport site or within 1 km of it?<br><br>Are there any experts or individuals in Uzbekistan who could assist in documenting, assessing, or conserving religious, cultural, or traditional craft sites near the proposed airport? | Cemetery use unmentioned, consistent with non-red zone location. No ethnographic surveys or heritage experts identified. | mutual support and long-standing co-residence point to a dense web of social norms and practices that form part of the mahalla's intangible heritage.<br>No ethnographic surveys or specific experts on religious or cultural heritage were mentioned. Women did not express expectations that the airport project would significantly alter their cultural practices, as their mahalla is not within the demolition zone. | mahalla is perceived as a "homeland," where informal norms of support, mutual respect, and responsibility for the well-being of neighbors operate. Gender-sensitive forms of communication and self-organization are an important part of the intangible cultural heritage. Separate women's groups create a safe space for discussing issues that are not always raised in mixed groups. These practices contribute to strengthening social cohesion and increasing women's participation in the public life of the mahalla. Residents view the traditions of collective discussion of problems, seeking compromises, and joint decision-making through mahalla structures ("the seven") as a well-established and significant element of the community's social identity. Respondents did not express concerns about the negative impact of the airport project on intangible cultural heritage, provided that their traditional way of life is maintained and there is no interference in the mahalla's internal social processes. | of the local mosque and the disruption of traditional burial practices indicate impacts on religious and commemorative practices.<br>Residents noted that there is no functioning mosque at present – the former mosque was closed – and that they lack a place to perform collective prayers. This affects daily and weekly religious routines and community gatherings. Traditional burial practices are also disrupted, as residents must now bury their dead in another mahalla, which alters long-standing cultural and familial patterns of commemoration.<br><br>No ethnographic surveys or specific experts in religious or cultural heritage were mentioned by participants. | women and men without a place to perform regular prayers. This disrupts traditional religious routines and social gatherings linked to the mosque.<br>Burial practices are also changing. Women now have to travel to another mahalla to bury their dead, which alters long-standing family and community patterns of remembrance. They did not mention specific folklore, traditional food-production places or sports practices within 5 km of the airport, nor any ethnographic surveys or experts working on documenting such practices. | documented in the project area.<br><br>No religious/folklore, burials, traditions, arts within 5km; mosque access limited. No surveys/experts noted. |

[67] Current knowledge of the proposed site location suggests that there are multiple burial graveyards within the project site. If these sites need to be removed because of the proposed development, there will be a need for excavation of archaeological material, the relocation of graveyards currently in use and/or the provision of alternative facilities and resources for communities at another location nearby as part of the mitigation activities.

**Table 14-4 FGD Guide Part 2 – Tangible and Intangible Cultural Heritage**

| Topic | Questions | Yangiyul makhalla, Urtachirchik district | Surum makhalla, Kuychirchik district | | Tarakkiyot makhalla, Urtachirchik district | Kushek makhalla, Kuychirchik district |
|---|---|---|---|---|---|---|
| | | Mixed Group | Mixed Group | Women Group | Mixed Group | Responses from Mixed Group |
| **Tangible Cultural heritage** | Are there any old buildings or ruins within the Toshkent Airport development area? If yes, please provide details.<br><br>Have any objects of archaeological interest (e.g., pottery, tools, coins, jewelry) been found in the area? If yes, please provide details.<br><br>Have any archaeological surveys or excavations been conducted within the proposed airport site?<br><br>Do you currently have - or are you aware of any government or non-governmental bodies who may have - any archaeological information or data[68] within the boundary of the proposed development of Toshkent Airport, or within a 1km zone around the proposed site? | No ruins/artifacts/surveys; all buildings utilized. No data holders known. | Participants provided detailed information on graveyards as central elements of tangible cultural heritage. In a joint meeting of three mahallas, an imam-khatib explained that all burials and bones from certain graveyards would be transferred to another cemetery. A Korean cemetery, historically used during the war years and no longer active, is also slated for demolition.<br>The group stressed that one particular cemetery located on elevated ground is still functioning and “should not be demolished,” as many residents’ parents and ancestors are buried there. They are strongly opposed to including this cemetery in demolition plans and requested a thorough review.<br>They also reported that maps shared by the company omitted one mahalla that is in fact under demolition, and that one of the working graveyards was also not clearly represented. This omission contributes to feelings of invisibility and exclusion in heritage decision-making. | Women reported that there are no cultural sites or monuments in their mahalla, which they describe as lacking cultural infrastructure. They did not mention historical buildings or archaeological finds in this discussion.<br>However, consistent with the broader area, graveyards and burial grounds remain key tangible heritage assets. While this specific women’s group did not elaborate on graveyards, earlier community discussions indicate that multiple graveyards, including Korean and Muslim burial grounds, are affected by project plans. Women’s roles in commemorative practices suggest that they will be directly impacted by any changes to these sites. | The FGD highlighted the presence of three graveyards: two Russian (presumably Orthodox or secular) and one Muslim cemetery. These burial grounds are important tangible cultural and religious heritage assets for the community.<br>The group did not mention old buildings, ruins, or archaeological artifacts (pottery, tools, coins, jewelry) within the project area. Nor did they report any archaeological surveys or excavations, or reference institutions holding archaeological information about the site. However, given the presence of multiple graveyards in the broader area (including those mentioned in previous discussions as falling within the airport territory), there is a potential intersection between the project and tangible heritage that requires careful management. | There are no archaeological sites or protected monuments within the mahalla. A monument to fallen soldiers from the collective farm era remains, but it is poorly maintained. The area also contains active and inactive graveyards, including a Russian cemetery. There are no holy sites or pilgrimage sites. |
| **Intangible Cultural heritage** | Are you aware of any intangible cultural heritage: If so, can you or do you know anyone who can provide further details? The kind of practices may include any of the following activities:<br>Religious or ‘folklore’ practices<br>burial and ancestral commemorative locations and practices. Traditional paths, routes, or pilgrimage routes<br>traditional food-production places and traditions.<br><br>Traditional agricultural, land, and animal husbandry practices, including nomadic or transhumance methods.<br><br>Traditional building techniques. | No religious/folklore/traditional practices, burials (small disused Muslim cemetery nearby), arts; no surveys/experts. | The discussion touched on burial and commemorative practices indirectly, through concerns about graveyards. Moving graves and demolishing graveyards threatens long-standing traditions of visiting and caring for ancestral graves, which are key elements of intangible cultural heritage.<br>Participants noted that religious authorities had been involved in explaining the relocation of remains, but they still feel that community voices and emotional ties to burial sites have not been fully recognized. They did not mention other intangible heritage such as folklore, traditional food production or sports practices in this particular discussion. | The women’s focus group did not provide detailed information on intangible cultural heritage (religious practices, folklore, pilgrimage routes, etc.). The absence of a functioning mosque and cultural centers, however, means that some traditional practices have fewer institutional spaces in which to be enacted.<br>Burial and commemorative traditions are important intangible practices that will be affected by cemetery relocation, but this was not explicitly discussed in this particular group. | In this mixed FGD, respondents did not provide detailed descriptions of folklore practices, pilgrimage routes, traditional food production sites or sports practices. The main relevant intangible elements relate to religious practices and burial customs associated with the existing graveyards and the former mosque.<br>The unused building of the old mosque, which now stands empty, symbolically reflects the disruption of religious practices in the mahalla: whereas previously residents had a place for collective prayer and religious teaching, they now lack a functional mosque. This affects weekly routines, religious | Intangible cultural heritage manifests itself through traditions of mahalla solidarity, collective decision-making, gender-neutral forms of communication, and sustainable practices of mutual aid. These elements play a key role in maintaining social resilience in the face of poverty and institutional constraints. |

[68] Reports and/or publications arising from any academic scholarly research within the area or close vicinity or Information held in any form collected and/or archived by any individuals, local communities or government or non-government agencies

| Topic | Questions | Yangiyul makhalla, Urtachirchik district | Surum makhalla, Kuychirchik district | | Tarakkiyot makhalla, Urtachirchik district | Kushek makhalla, Kuychirchik district |
|---|---|---|---|---|---|---|
| | | Mixed Group | Mixed Group | Women Group | Mixed Group | Responses from Mixed Group |
| | Traditional hunting, sports, or athletic practices (subsistence, recreational, educational, or competitive).<br><br>Traditional arts, music, or performance-based practices (recreational, ritual, financial, or educational).<br><br>Do you have any information about the past and/or current use of graveyards[69] by people within your community or any other communities within the Toshkent Airport development area?<br><br>Are you aware of any ethnographic surveys conducted within the airport site or within 1 km of it?<br><br>Are there any experts or individuals in Uzbekistan who could assist in documenting, assessing, or conserving religious, cultural, or traditional craft sites near the proposed airport? | | | | education and community gatherings.<br>No ethnographic surveys or experts on cultural or religious heritage were mentioned by participants. Nonetheless, the information on graveyards and the former mosque suggests that intangible cultural heritage is present but undocumented. | |

[69] Current knowledge of the proposed site location suggests that there are multiple burial graveyards within the project site. If these sites need to be removed because of the proposed development, there will be a need for excavation of archaeological material, the relocation of graveyards currently in use and/or the provision of alternative facilities and resources for communities at another location nearby as part of the mitigation activities.

## 14.5 Potential Impacts, Mitigation and Management

### 14.5.1 Assessment Methodology

Following the characterisation of the baseline conditions, the methodology used to characterise the likely effects on potential cultural heritage within the Project site area has entailed:

1. Evaluating the significance of heritage assets, based on the site evaluations, experience and professional judgment (in the absence of any previous designation/protection for any sites in the area);
2. Predicting the magnitude of change upon the known or potential heritage significance of assets and the likelihood and resulting significance of effect;
3. Considering the effect of mitigation measures that have been already incorporated into the project's design, where/if applicable;
4. Considering additional mitigation that might be required to avoid, reduce or off-set any significant negative effects; and
5. Quantifying any residual effects (those that might remain after mitigation).

#### 14.5.1.1 Determining Asset (Receptor) Heritage Significance

The heritage significance (or heritage 'value' or 'sensitivity') of an asset is normally determined by its scientific, historical, or cultural importance. The level of importance is calculated using a combination of the significance professional judgement and the assigned IFC category (Critical, Non-Replicable or Replicable; see Table 14-6).[70]

The assessment takes into consideration:

- Whether a heritage asset can be moved to another location or replaced by a similar site, or is of a type that is common in the surrounding region (replicable, non-replicable or critical);
- The extent of the heritage asset's cultural value to local, national, or international stakeholders; and/or
- The asset's scientific value based on a combination of factors including likely date, condition and rarity.

**Table 14-5 Heritage Significance Ratings & Criteria**

| Definition of heritage significance | Heritage Significance | Examples |
|---|---|---|
| • Site is protected by local, national and international laws or treaties;<br>• Site cannot be moved or replaced without major loss of cultural value - and is assessed as 'Critical' within IFC categories;<br>• Legal status specifically prohibits direct impacts or encroachment on site and/or protection zone;<br>• Site has substantial value to local, national and international stakeholders; and/or | **High** | • World Heritage Site;<br>• Site with specific high order national protection status;<br>• Archaeological site with demonstrated or clear potential;<br>• international scientific or cultural value;<br>• Regionally important natural feature (rock formation,<br>• tree grove, etc.). |

[70] IFC (2012), Performance Standard 8 – Cultural Heritage

| Definition of heritage significance | Heritage Significance | Examples |
|---|---|---|
| • Site has exceptional scientific value and similar site types are rare or non-existent | | |
| • Site is specifically or generically protected by local or national laws but laws allow for mitigated impacts;<br>• Site can be moved or replaced, or data and artefacts recovered in consultation with stakeholders<br>• Site has considerable cultural value for local and/or national stakeholders; and/or<br>• Site has substantial scientific value but similar information can be obtained at a limited number of other sites. | **Medium-High** | • Complex archaeological site with preserved occupation<br>• stratum;<br>• Important historic place of worship (mosque, church,<br>• etc.)<br>• Structure, enclosure or system of enclosure of potentially important or unique use and good potential for additional information<br>• Burial mound/tomb<br>• Regionally important natural feature (rock formation, tree grove, etc.).<br>• Area of proven high archaeological potential. |
| • Site is not specifically protected under local, national, or international laws or treaties;<br>• Site has some cultural value for local and/or national stakeholders; and/or<br>• Site can be moved to another location or replaced by a similar site, or is of a type that is not unique in the surrounding region,<br>• Site has good scientific value but similar information can be obtained at a limited number of other sites. | **Medium-Low** | • An archaeological site or area with preserved stratum;<br>• A historic place of worship (mosque, church,<br>• etc.)<br>• Structure, enclosure of unknown use or some potential for additional information<br>• Potential burial mound/tomb<br>• Locally important natural feature (rock formation, tree grove, etc.).<br>• An area of proven archaeological potential. |
| • Site is not specifically protected under local, national, or international laws or treaties;<br>• Site can be moved to another location or replaced by a similar site, or is of a type that is common in the<br>• surrounding region,<br>• Site has limited cultural value to local, national, or international stakeholders; and/or<br>• Site has limited scientific value or similar information can be obtained at numerous sites. | **Low** | • Historic trash disposal site (an archaeological midden);<br>• Shrine site with limited associated construction;<br>• Traditional village graveyard;<br>• Simple place of worship;<br>• Sacred tree of minimal local importance;<br>• An area of possible archaeological potential<br>• |
| • Site is not specifically protected under local, national, or international laws or treaties; | **Very Low** | • Archaeological lithic or ceramic scatters without underlying cultural stratigraphy; |

| Definition of heritage significance | Heritage Significance | Examples |
|---|---|---|
| • Site can be moved to another location or replaced by a similar site, or is of a type that is common in the surrounding region,<br>• Site has low or no cultural value to local, national, or international stakeholders; and/or<br>• Site has very limited or no scientific value or similar information can be obtained at numerous sites. | | • Shrine site with no associated construction or history<br>• An area of limited archaeological potential<br>• Disjointed or sections of feature defining boundaries which are well known |

**Table 14-6 IFC Cultural Heritage Category**

| Replicable Cultural Heritage (Low) | Non-Replicable Cultural Heritage (Medium) | Critical Cultural Heritage (High) |
|---|---|---|
| Living heritage sites that can easily be moved or replaced with another structure or appropriate natural feature.<br><br>Archaeological or historical sites may be considered replicable where the particular eras and cultural values they represent are well represented by other sites or structures or are already well understood. | Archaeological or historical sites that reflect in detail the economic, cultural, environmental, and climatic conditions of past peoples, their evolving ecologies, adaptive strategies, and early forms of environmental management,<br>where cultural heritage is unique or relatively unique either (i) for the period it represents, or (ii) in linking several periods in the same site. | Includes (i) the internationally recognised heritage of communities who use, or have used within living memory the cultural heritage for longstanding cultural purposes; or (ii) [nationally or internationally] legally protected cultural heritage areas, including those proposed by host governments for such designation. |

### 14.5.1.2 Determining Magnitude of Impact

The determination of the 'magnitude of impact' upon the significance of known or potential heritage assets is based on the severity of the likely impact to that asset. Impacts, relating to heritage, are typically physical disturbances which will cause irreversible damage. The magnitude of the impact is best characterised by the extent of the damage in comparison to the whole asset. Limitations on access to assets, either permanent or temporary, are another form of impact to be considered.

**Table 14-7 Magnitude of Impact Criteria**

| Magnitude of Impact | Definition of Impact |
|---|---|
| **High** | Complete removal of asset.<br>Change to asset significance resulting in a fundamental change in our ability to understand and appreciate the resource and its historical context, character and setting. The scale of change would be such that it could result in a designated asset being undesignated or having its level of designation lowered |
| **Medium** | Change to asset significance resulting in an appreciable change in our ability to understand and appreciate the asset and its historical context, character and setting or the unrecorded loss of archaeological interest. |

| Magnitude of Impact | Definition of Impact |
|---|---|
| **Small** | Change to asset significance resulting in a small change in our ability to understand and appreciate the asset and its historical context and character. |
| **Negligible/No Change** | Negligible or no discernible change in the physical condition, setting or accessibility of the site |

#### 14.5.1.3 Significance of Effect

The significance level attributed to each effect is usually assessed based on the heritage significance of the affected heritage asset and the magnitude of impact to the heritage significance of the asset as a result of the Project.

**Table 14-8 Significance of the Effects Outcomes**

| Significance / Impact | Very Low | Low | Medium-Low | Medium-High | High |
|---|---|---|---|---|---|
| Negligible/No Change | Negligible | Negligible | Negligible | Negligible | Negligible |
| Small | Negligible | Negligible | Minor | Minor | Moderate |
| Medium | Minor | Minor | Moderate | Moderate | Major |
| High | Moderate | Moderate | Major | Major | Major |

### Definitions of effects:

- **Major effect**: where the Project could be expected to have a considerable effect (either positive or negative) on heritage assets (receptors). For the cultural heritage resource this equates to substantial harm to, or loss of, significance of an asset of high or medium heritage significance.
- **Moderate effect:** where the Project could be expected to have a noticeable effect (either positive or negative) on heritage assets (receptors). For the cultural heritage resource this equates to less than substantial harm to the significance of an asset of high or medium heritage significance.
- **Minor effect:** where the Project could be expected to result in a small, minimally noticeable effect (either positive or negative) on heritage assets (receptors). For the cultural heritage resource this equates to less than substantial harm to the significance of an asset of medium heritage significance or substantial harm to, or the loss of, significance of an asset of low heritage significance.
- **Negligible:** where no discernible effect is expected as a result of the Project on the cultural heritage resource (i.e. the effect is insignificant), or less minimal harm to the significance of an asset of very low heritage significance.

### 14.5.2 Impact Assessment

#### 14.5.2.1 Tangible Cultural Heritage (Archaeology/Historical monuments)

The area in and around the Project development includes various features and locations which may be considered of tangible cultural heritage value. In particular:

- Artificial mounds (or "tepa") representing the visible remains of possible settlement and/or graveyard sites, which may date to medieval and/or pre-medieval eras
- Possible kurgan-style burial mounds
- Historic graveyards
- Other as-yet unidentified ruinous structures of potential historical and/or archaeological interest

It is possible that some of the mounds are a result of the removal and amassing of earth associated with significant reconfigurations of the landscape, including land-clearing for crops, and the excavation of irrigation ditches canals, especially in the twentieth century. Some mounds may also be naturally occurring glacial depositional features sometimes known in outwash alluvial plains such as this. However, it is important to note the precedence for features very similar to those identified at the Project site throughout central Asia, as well as specifically in Uzbekistan, dating from as early as the Bronze age, through to the medieval period. The distinction between different types of mounds is best understood as follows:

> *"Tepa:*
> *Multilayered anthropic mound, different in shape, size, and morphology, and ranging from 1 to more than 20 m in height. This type has been found all over the districts explored.*
>
> *Kurgan:*
> *Typical Central Asian funeral and ritual sites, with either single or multiple burials, and usually marked by the presence of stones on the ground.*
>
> *Low-mounds:*
> *Anthropic remains raised ca. 1 m or less from the ground. Thus, unlike the tepa, low mounds are very difficult to detect on the field, and often they are visible only with certain conditions of light and vegetation. On the contrary, low-mounds appear clearly on the latest satellite images available on Google Earth. Noteworthy, they are almost always clustered and located in the proximity of major tepa. For this reason, and in consideration of their small size and limited height, these low-mounds are often reported as kurgan (i.e. burials)."*[71]

In this context – and in the absence of more detailed information about the mounds within the project site – it must be assumed that some or all the mounds identified within the Project site have a cultural origin. As potential remains of former settlement and/or burials, they can best be assessed as being of moderate to high value.

[71] Mantellini, S. 2013. *Settlement dynamics, territory exploitation, and trade routes in the ancient samarkand oasis (uzbekistan)* (Archeologia delle "Vie della Seta": Percorsi, Immagini e Cultura Materiale II Ciclo di Conferenze).

**Figure 14-13 Examples of two Tepa (left) and low mounds (right) at the complex of Kurgan Kadirbeg in Uzbekistan, in a comparable terrain the Project site.** [72]

***Impacts on Tangible Heritage***

Based on the methodology outlined above for measuring significance of heritage assets and magnitude of change on known potential heritage assets, the following rational has been used in assessing risk to potential tangible heritage:

| | | |
|---|---|---|
| Potential cultural heritage sites of unknown significance | → | **Assumption** of **High** heritage significance until confirmed otherwise |
| Incomplete project design information | → | **Assumption** of removal of all potential sites, representing (without mitigation in design or during construction) potential **high magnitude impact** |
| Assumed high heritage significance + assumed high magnitude of impact | → | **Assumed major effect** to potential tangible cultural heritage on and/or close to the Project location. |

It is therefore determined that, without precautionary construction measures and mitigation incorporated into the Project design; there may be **major negative effects** on tangible cultural heritage.

### 14.5.2.2 Intangible Heritage

***Sites of Intangible significance ('Living Heritage')***

1. Based on responses from consultation with government, stakeholders and local communities, the following locations of intangible heritage value were cited - Burial sites still in use or which have fallen out of use in the last fifty years (local and Korean Christian and Muslim).
    - **Surum makhalla** indicated that: **"**one particular cemetery located on elevated ground is still functioning and 'should not be demolished,' as many residents' parents and ancestors are buried there. They are strongly opposed to including this cemetery in demolition plans and requested a thorough review." Also, that "one of the working graveyards was also not clearly represented" and that "A Korean cemetery, historically used during the war years and no longer active, is also slated for demolition." The Imam had indicated to the community that "all burials and bones from certain graveyards would be transferred to another cemetery."

[72] *Ibid.*

- **Khalkhabad makhalla** indicated that there are four graveyards within the development footprint; with conflicting accounts that all are out of current use and that one is still in-use. A conflict seems to be expressed between the approval given by the religious leaders for the removal/destruction of the graveyards, but that this view was not necessarily shared by the women in the community.

The reference to four cemeteries, presumably refers to Sites 1, 2, 4 and 5. The reference to a graveyard which is not represented in the plans possibly refers to other cemeteries outside the development footprint and outside the buffer zone (see Figure 14-14).

Reference to a Korean cemetery may refer to Sites 1, 3 or 5 all of which have been identified as Korean and/or Russian graveyards. One of these (Site 3) lies outside the development footprint, but within the buffer zone to the east of the development. The remaining two have been identified for relocation in the Burial Relocation Plan.

No active graveyards within the development footprint area are documented or have been identified in any of the surveys. It is assumed that the reference to an active or recently active graveyard on elevated ground refers to Site 6, which falls outside the development footprint, but falls within the buffer zone. Notably, this site used to fall within the development footprint area but no longer does so since the development footprint was moved slightly to the west. The move of the site was partly in response to the February 2024 NACO report, which stated that:

> "*For Location 1 [site 6], which currently encompasses an active cemetery, it has become necessary to adjust the site's positioning. Specifically, the site will require a westward shift of 300 meters. This modification is essential to prevent any disturbances to the railway line, the service road, and to maintain the sanctity of the cemetery itself. Notably, this requirement was overlooked in the initial GIS mapping analysis. This oversight underscores the need for a thorough review and update of GIS data to accurately reflect ground realities, ensuring that future planning and development activities can proceed without adversely affecting critical infrastructure and sensitive sites."*

Contradictory views in Khalkhabad makhalla concerning approval for the removal/destruction of graves is mitigated against with the relocation of all recent graveyards, as per the Burial Relocation Plan.

2. The **Khalkhabad** and **Tarakkiyot makhallas** both refer to a mosque which has recently been abandoned and fallen into disuse; leaving no communal place for worship. No disused mosque has been identified within the development footprint; and it is deemed that there is no mosque within the development footprint that is still in use and which is directly affected by the development; or which had not already fallen out of use prior to this development.

3. The **Kushek makhalla** refer to a 'monument to the fallen' which has fallen out of maintenance and may be threatened. No remains of a monument to the fallen has been identified within the development footprint.

***Intangible Heritage***

No specific intangible heritage practices were cited. **Beruniy** and **Do'stlik makhalla** referred to strong ties of "neighbourly community", "mutual assistance" and "long-standing co-residence" "…which point to a dense web of social norms and practices that form part of the mahalla's intangible heritage." While these do not reference traditional institutional or religious intangible

heritage, they make valid reference the intangible nature of equivalent social structures arising out of a secular Soviet/post-Soviet 'folk' culture. Both groups indicated that this was not likely to be affected by the development. Nevertheless, due consideration should be outlined in the Cultural Heritage Management Plan for safeguarding the intangible cultural heritage value of these kinds of social bonds in the community consultation/communication processes during the construction phase.

**Impacts on Intangible Heritage**

Based on the criteria for assessing impact above, the following rational has been used in assessing risk to intangible heritage:

| | | |
|---|---|---|
| Sites of recent burial and movable sites of intangible cultural heritage significance | → | Medium - **High** heritage significance until relocation plans are completed |
| Likely need for displacement of intangible heritage assets | → | **Medium** magnitude of impact |
| Medium - high heritage significance + medium magnitude of impact | → | **Moderate effect** to assumed/contested intangible cultural heritage on and/or close to the Project location |

It is determined that without efforts to relocated burials and (if applicable) the monument to the fallen, there may be **moderate negative effects** on intangible cultural heritage.

### 14.5.3 Mitigation

A CHMP will be developed and implemented prior to construction and will provide the overarching framework for management of cultural heritage during the Project. The CHMP will define the site-specific management and monitoring measures applicable to each identified potential cultural heritage site, based on the findings and recommendations of the Cultural Heritage Review, as well as procedures for managing previously unidentified cultural heritage and chance finds encountered during construction. The CHMP will be implemented in accordance with applicable national requirements and GIIP.

**Tangible Heritage (Archaeology)**

Precautionary actions early during the pre-construction phase, as outlined in the CHR Report are recommended. This, in brief, would involve the mechanical and/or manual excavation of minimum 2-3m deep trenches at targeted positions in and around the centre of the three sites of potential cultural heritage value within the development footprint. Manual excavation may be necessary at Site 2, where access for mechanical excavators would be restricted. This should take place under the supervision of a local 'open sheet' permit holding archaeologist and a second independent archaeologist not involved in the original Academy of Sciences survey and report (2026). Work should ideally take place before the 'open sheet' permits expire in December 2026 and before the wet season (before November).

This activity may be supplemented with geotechnical cores to 5m at targeted positions on the proposed trenches lines to help evaluate the best positioning and/or the necessary depth of trenches; and/or in other locations of the mound to provide additional data. However, this method should not be used as the only method for assessment on the mounds, as it provides narrow stratigraphic samples in locations which may lie between significant features or may not be representative of the wider site.

Additional recording activity may be required as part of the mitigation strategy, should significant archaeological remains be found. Such works may last for up to 16 weeks according to the Academy of Sciences guidelines.
This work should take place either in tandem with or after the burial relocation activities; but should not take place before specific burial locations intended for exhumation and relocation have been determined and agreement with the District Khokimiyats and District Landscaping Departments.

Sites of **Tangible Heritage Significance**

*Graveyards*

Burial relocations should be implemented as per the Burial Relocation Roadmap and Methodology. This involves a process of burial identification, consultation and permissions, preparation of reburial sites, exhumation, transportation, reburial and reporting/documentation.

*Monument to the Fallen*

**Kushek makhalla** should be consulted during pre-construction phase to confirm the location of this monument, whether it is within the development footprint; and if there are options for either it's relocation or reconstruction at another location.

**Intangible Heritage**
Cultural Heritage Management Plan to include protocol for communication and consultation with communities for assessing for disruption to social ties and cohesion associated with "long-standing co-residence" and offering pastoral support, if/where required.

## 14.6 Monitoring

Following completion of surveys and pre-construction mitigation, a programme of ongoing monitoring during construction should be developed in line with the results of this work. This should include a Chance Finds Procedure. Details should be set out in the Cultural Heritage Management Plan (CHMP).

### 14.6.1 4.6.1. Cultural Heritage Management Plan

A CHMP will be prepared setting out details of additional surveys, mitigation and monitoring as summarised above. The CHMP should include the following elements:

- Objectives and Project Overview
- Roles and Responsibilities
  - Client
  - Contractors
- Legislation and Guidance
- Summary of Cultural Heritage Baseline
- Summary of Impacted Cultural Heritage
- Mitigation Measures
- Training/Awareness
- Reporting/Archiving Requirements
- Sharing of Benefits
- Appendices: 1) maps of known CH sites 2) Programme of heritage works

All surveys and mitigation fieldwork should be carried out in accordance with method statements to be prepared in accordance with national legislation and applicable lender bank standards/guidance (e.g. IFC's PS8). These should be reviewed and approved by relevant

stakeholders and qualified experts. This should include details of reporting which should be submitted within a reasonable period after the completion of surveys.

# 15.0 Socioeconomics

## 15.1 Applicable Requirements and Standards

### 15.1.1 National Regulations

The following legislation provides for relevant socioeconomic aspects, including land access:

The following land Laws are relevant to the Project:

- Civil Code of the Republic of Uzbekistan (1997, as amended in 2025).
- Land Code of the Republic of Uzbekistan (1998, as amended in 2025).
- Law of the Republic of Uzbekistan on State Land Cadastre No.666-I of (1998, as amended in 2025).

Constitution of the Republic of Uzbekistan provides guarantee of creation and protection of social rights for citizens, in particular for:

- The rights of disabled and lonely elderly people, persons with disabilities and other socially vulnerable categories of the population are protected by the state.
- The state is taking measures aimed at improving the quality of life of socially vulnerable categories of the population, creating conditions for them to fully participate in public and state life and expanding their ability to independently provide for their basic life needs.
- The state creates conditions for persons with disabilities to have full access to objects and services in the social, economic and cultural spheres, promotes their employment, education, and ensures the opportunity to freely obtain the information they need. (Article 57).

Law of the Republic of Uzbekistan on Protection of Women Against Oppression & Violence (as amended 09.12.2021 No. ZRU-736)

The purpose of this law is to provide protection to women against all forms of oppression and violence. The law recognises different forms of violence including: sexual violence, physical abuse, violence, economic violence, workplace violence, psychological violence etc.

In addition, Article 4 details the rights of the victims of oppression and violence which include:

- Right to appeal to the relevant authorized bodies & organisations or court with the statement for making concerning it of oppression and violence or threat of their making;
- Receipt of free legal consultation, economic, public, psychological, medical and other assistance in the special centres and also by means of free phone line;
- The appeal to law-enforcement bodies with the requirement about issues of the security order, and in case of violation, of conditions of the security order informing them about it,
- Appeal to the court with the requirement about compensation of the material damage caused to it and compensation of moral harm owing to committed oppression and violence.

The victim of oppression and violence in case of appeal to the court with the statement for compensation of the material damage caused to it and compensation of moral harm is exempted from payment of the state fee.

### 15.1.2 Lender's Requirements

IFC

Several of the IFC Performance Standards have elements that relate to socioeconomics. Under PS1 and PS4, IFC requires assessment and management of socioeconomic impacts including displacement, community health and safety, livelihoods, and local economic effects. Projects must engage with affected communities and implement measures to avoid or mitigate adverse impacts.

Additionally, PS5 on Land Acquisition and Involuntary Resettlement has important requirements relating to projects that acquire land or will necessitate physical or economic displacement to PAPs, including compensatory measures.

EBRD

ESR 1 outlines the need to assessing social impacts as part of ESIA. The ESR1 objectives in relation to social assessment are as follows:

- "identify and assess [...] social risks and impacts of and to the project",
- "address [...] social risks and impacts from project activities on workers [and] affected communities",
- "integrate human rights risks and impacts into the assessment and management process", and
- "implement an ESMS commensurate with the [...] social risks and impacts of the project".

ESR 5 on land acquisition, restrictions of land use, and involuntary resettlement addresses impacts of project-related land acquisition, including involuntary resettlement as both physical displacement (relocation or loss of shelter) and economic displacement (loss of land, assets or restrictions on land use, assets and natural resources leading to loss of income sources or other means of livelihood).

## 15.2 Scoping

As part of the Environmental and Social Impact Assessment (ESIA), a comprehensive socio-economic study was undertaken to establish a robust baseline and to identify and assess potential future adverse socio-economic impacts associated with the Project. The study was conducted by NBT, with technical guidance and oversight provided by SLR Consulting.

The socio-economic assessment has developed detailed profiles of communities within the Project Area of Influence (AoI) and characterised existing conditions that may be affected by Project construction and operation activities. The assessment covers, but not be limited to, the following thematic areas:

- Administrative and political organisation, local governance, and institutional structures;
- Population characteristics, demographic trends, and migration patterns;
- Local and regional economy, employment, livelihoods, and dependence on natural resources;
- Land tenure, land use patterns, and access to land and resources;
- Community health status, education services, and housing conditions;
- Infrastructure and services, including site access, transportation, water supply, sanitation, and energy;
- Tourism, recreation, and cultural or community assets;

- Vulnerable groups, gender relations, and social inclusion considerations; and
- Community organisation, leadership structures, security arrangements, and the presence of local non-governmental organisations (NGOs) and community-based organisations (CBOs).
- The socio-economic baseline will be established through a combination of qualitative and quantitative data collection methods, drawing on both primary and secondary data sources.
- Secondary data will include available national, regional, and local statistics, published reports, planning documents, and other relevant studies.
- Primary data will be collected through field-based activities designed to supplement secondary information and capture site-specific conditions.

Primary data collection activities included the following:

### 15.2.1 Stakeholder Consultations

Structured and semi-structured consultations were undertaken with key stakeholders, including local authorities, community representatives, vulnerable groups, and relevant organisations. These engagement processes generated important socio-economic information, insights into community priorities and concerns, and qualitative data relevant to the assess-ment of Project-related impacts. Information gathered through consultations informed both the baseline description and the identification of potential socio-economic risks and opportunities.

### 15.2.2 Household Surveys

A household survey covering approximately 272 households was conducted in communities located closest to the Project footprint and most likely to experience Project-related impacts. The survey was designed to develop a current socio-economic profile of potentially affected communities. The questionnaire focused on key household characteristics, including demographic composition, housing and amenities, access to basic services, income and expenditure patterns, employment status, livelihood activities, and other relevant socio-economic indicators.

The findings from the socio-economic study informed the ESIA impact assessment, identification of vulnerable groups, and the development of appropriate mitigation, management, and enhancement measures in accordance with applicable national regulations and international good practice.

## 15.3 Background and Methodology

The proposed Project site is located approximately 35 km south of Tashkent City and 20 km from the existing Tashkent International Airport, in a predominantly flat rural area within the territory of the Tashkent Province, Urta-Chirchik and Kuyi-Chirchik districts. The national context shown in the figure below.

The social AoI corresponds to a 5 km radius surrounding the Project boundary, as illustrated in Figure 15-2. The AoI has been defined to capture potential direct, indirect, and cumulative environmental and social impacts and risks associated with the construction and operation of the Project and associated facilities. The AoI encompasses human receptors, including 11 makhallas within Urta-Chirchik and Kuyi-Chirchik districts.

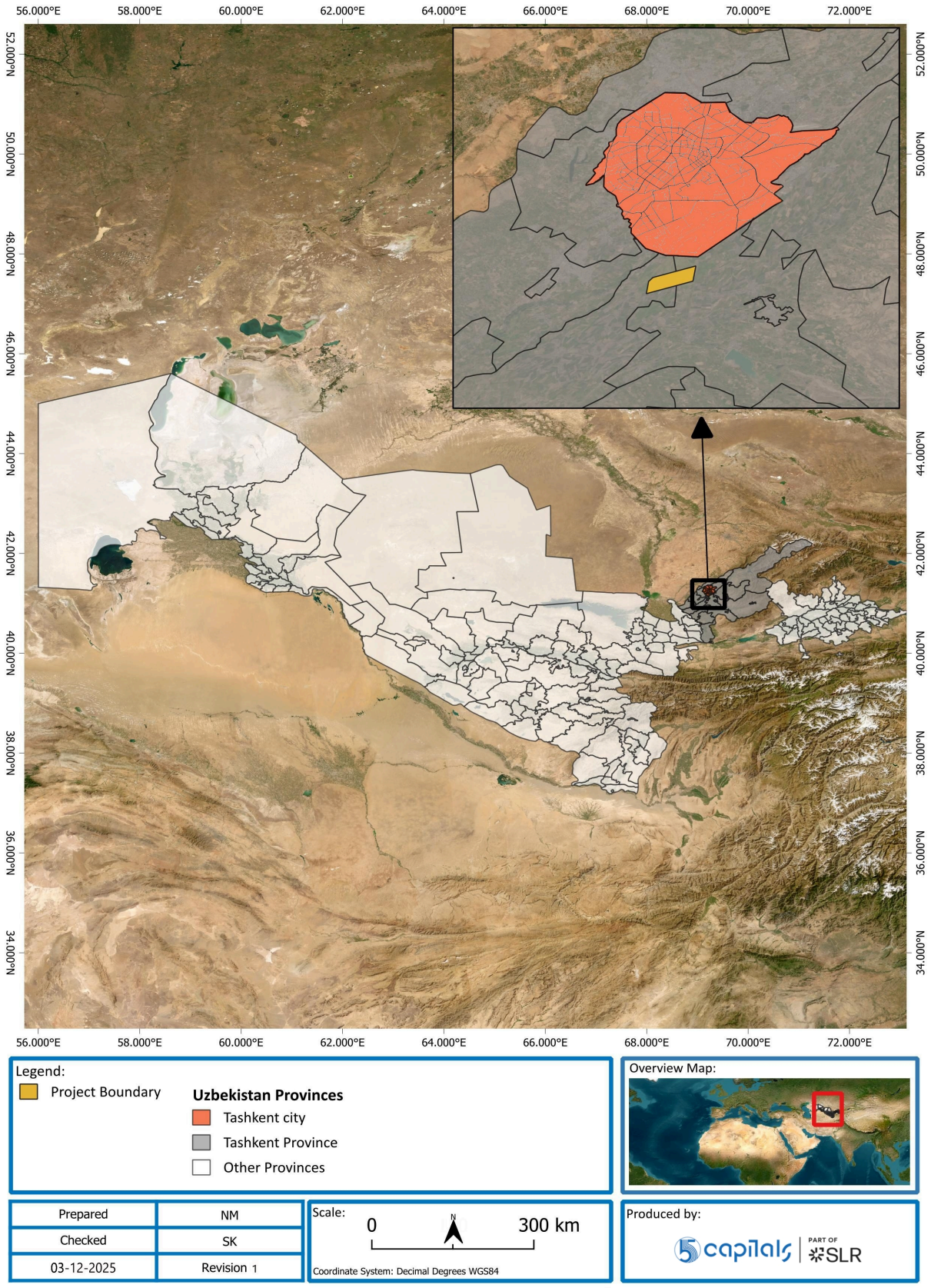



**Figure 15-1 National Project Context**

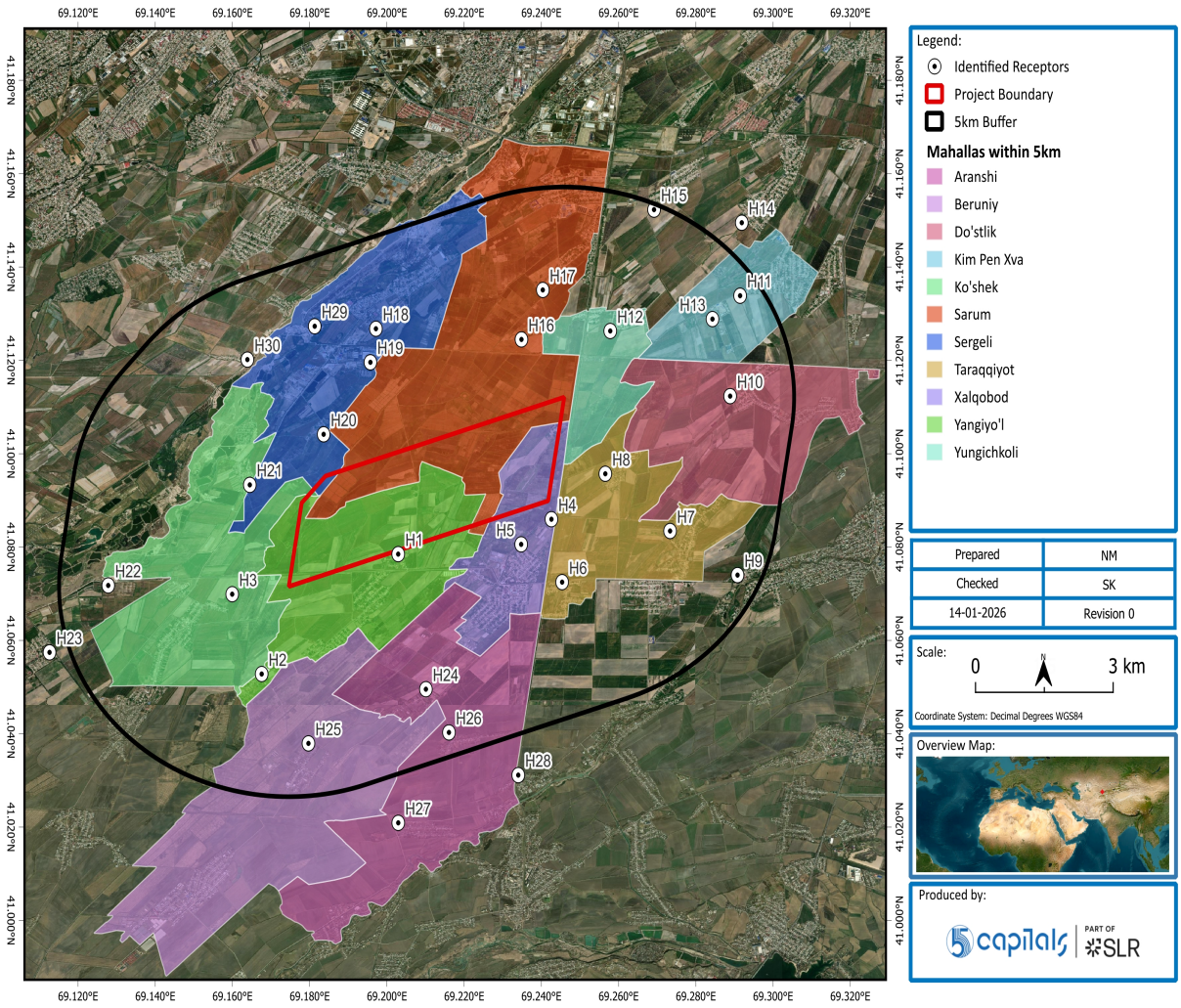



**Figure 15-2 Local Communities within the Project's Social AoI**

### 15.3.1 Methodology

The socioeconomic baseline data presented was gathered through a combination of secondary research and social surveys, including two public meetings, bilateral meetings, focus group discussions (FGDs), door-to-door visits with vulnerable groups, and household survey. Project information brochures were distributed to community members during FGDs and to vulnerable households through the door-to-door visits, with all information provided in Uzbek and Russian.

A total of 272 household surveys were conducted in 11 makhallas within the Project's social AoI. Statistical representativeness of the household survey was ensured by applying the Cochran sampling formula at a 95% confidence level with a ±6% margin of error. The resulting sample size was then allocated proportionately among the 11 makhallas based on their respective household numbers. The table below presents a summary of the sample size of each surveyed makhalla.

**Table 15-1 Number of Surveyed Households by Makhalla, 2026**

| Makhalla | Total Household No. | Total sample size |
|---|---|---|
| Aranshi | 569 | 18 |
| Yongichkoli | 319 | 14 |
| Kim Pen Khva | 1,015 | 41 |
| Tarakkiyot | 520 | 17 |
| Khalkobod | 886 | 28 |
| Yangiyul | 404 | 13 |
| Dustlik | 636 | 20 |
| Surum | 1,156 | 37 |
| Kushek | 1,101 | 35 |
| Sergeli | 582 | 19 |
| Beruniy | 917 | 30 |
| **GRAND TOTAL** | **8,105** | **272** |

## 15.4 Baseline Condition – National and District Level

### 15.4.1 Political and Administrative Structure

The 1992 Constitution of Uzbekistan (with 2017 amendments) is the framework for political institutions and local governance system. Uzbekistan is a unitary presidential Republic. The Supreme Assembly (*Oliy Majlis*) comprises of parliament, consisting of the Senate and legislative chamber. The 1993 Law on Local Public Administration established a dual system of appointed local state administration and elected local governments. The office of the presidents has powers appoint the head of regional state administration (namely governor or *hokim*). Regional *hokims* are responsible for appointing the districts' and cities' heads of state administration. Regions are further subdivided into cities and districts, and each of them is headed by its own hokim and is composed by several *makhallas*. Self-governing community organizations exist in settlements, villages, as well as in *makhallas*.

There are 12 provinces (*viloyats*) in Uzbekistan, one autonomous republic; namely Karakalpakstan Republic, and the capital city of Tashkent. Tashkent city covers an area of 435 km² and is divided into 12 administrative districts.

### 15.4.2 Population and Demographics

#### 15.4.2.1 National and Tashkent Region

According to the National Statistics Committee of the Republic of Uzbekistan (2026), as of 1st January 2026, the total population was estimated to be 38,322,768, comprising of 19,299,346 males and 19,032,422 females[73]. As of 1st April 2023, the total population of Tashkent region was 3,007,000, comprising an urban and rural population of 1,504,700 people and 1,502,300 people respectively. The average age of the population in Tashkent region was 30.8 years old in 2025[74].

[73] National Statistics Committee. 2026. "Permanent population". Available at: https://stat.uz/en/.

[74] National Statistics Committee. 2025. "The average age of the population in the regions of the Republic of Uzbekistan". Available at: https://yuz.uz/en/news/sredniy-vozrast-naseleniya-po-regionam-respubliki-uzbekistan.

#### 15.4.2.2 Tashkent City

The 2026 population of Tashkent city is estimated at 2,697,410, a 32,330 increase since 2025, representing an annual growth of 1.21%[75]. In 2023, approximately 49% of the population were males (1,492,100), and 51% (1,548,700) were female. The average age of the population was 32.6 years old in 2025.

[75] World Population Review. 2026. “Tashkent population”. Available at: https://worldpopulationreview.com/cities/uzbekistan/tashkent.

#### 15.4.2.3 Study Area

The table below presents summary data of the surveyed households in the study area. The total population of the sampled households was 1,303, comprising 658 male household members and 645 female household members.

**Table 15-2 Summary of Surveyed Households by Makhalla**

| Name of Makhalla | Aranshi | Yongichkoli | Kim pen khva | Tarrakiyot | Khalkobod | Yangiyul | Dustlik | Surum | Kushek | Sergeli | Beruniy | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total surveyed households | 18 | 14 | 41 | 520 | 17 | 28 | 13 | 20 | 37 | 35 | 19 | 272 |
| No. male-headed households | 16 | 11 | 26 | 13 | 13 | 19 | 7 | 13 | 30 | 21 | 1 | 189 |
| No. female-headed household | 2 | 3 | 15 | 4 | 4 | 9 | 6 | 7 | 7 | 14 | 7 | 83 |
| Total surveyed household members | 81 | 71 | 188 | 105 | 105 | 146 | 43 | 95 | 207 | 142 | 87 | 1303 |
| No. of surveyed household members that are male | 40 | 35 | 99 | 53 | 53 | 81 | 23 | 46 | 100 | 72 | 41 | 658 |
| No. of surveyed household members that are female | 41 | 36 | 89 | 52 | 52 | 65 | 20 | 49 | 107 | 70 | 46 | 645 |

### 15.4.2.4 Age of surveyed household heads (HHH)

The table below presents the age group distribution of the household head of male-headed households (MHH) and female-headed households (FHH) in the surveyed makhallas. Across all surveyed makhallas, the majority of both male- and female-headed households (27%) are aged 56-65, followed by 26% aged 66 and above. This indicates a relatively older population of household heads within the study area.

**Table 15-3 Age Group Distribution of Surveyed HHHs, Disaggregated by Gender**

| Age Range | Total | | MHH | | FHH | |
|---|---|---|---|---|---|---|
| | Number | Percentage | Number | Percentage | Number | Percentage |
| 17-25 | 1 | 1% | 1 | 1% | 0 | 0% |
| 26-35 | 19 | 7% | 16 | 8% | 3 | 4% |
| 36-45 | 54 | 19% | 43 | 23% | 11 | 13% |
| 46-55 | 55 | 20% | 43 | 23% | 12 | 14% |
| 56-65 | 73 | 27% | 41 | 21% | 32 | 39% |
| 66+ | 70 | 26% | 45 | 24% | 25 | 30% |
| **Total** | **272** | **100%** | **189** | **100%** | **83** | **100%** |

### 15.4.2.5 Age of surveyed household members

The figure below shows the age distribution of surveyed household members, disaggregated by gender. The majority (30%) of surveyed household members, both male and female, are aged 17 years and below. This is followed by those aged 36-45 (16%) and 26-35 (15%). The least represented age group among male household members is 56-65 years, while among female household members it is 46-55 years.

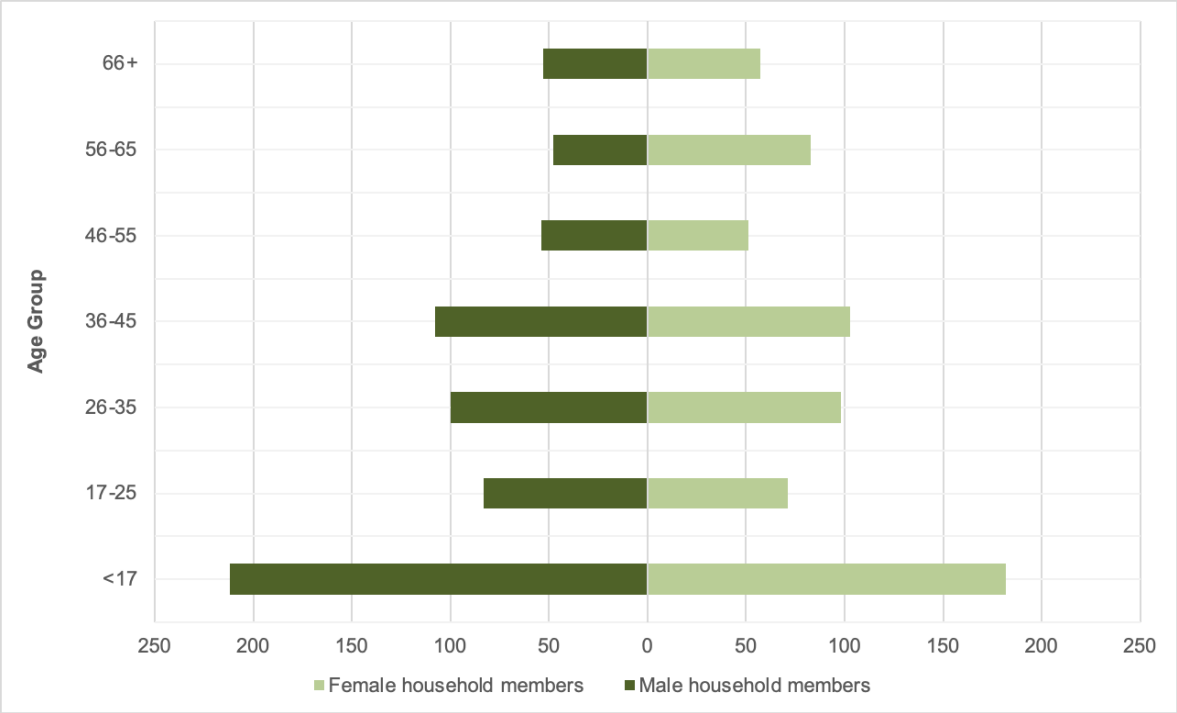



**Figure 15-3 Age Pyramid of the Surveyed Households, Disaggregated by Gender**

### 15.4.3 Nationality

Among the surveyed households, approximately 59% identified as Uzbeks. Other nationalities represented among the surveyed households were Kazakh (25%), Korean (6%), Tatar (3%), Tadjik (1%), Russian (1%), and others (5%).

### 15.4.4 Indigenous Peoples

The policy framework and legislation of the Government of Uzbekistan do not recognize any section of the national population that can be considered 'Indigenous Peoples' (IPs). The assessment against the IFC PS 7 requirement for Indigenous Peoples demonstrates that none of the four criteria are met, as shown in the table below. Considering that no IPs are present near the Project site, potential impacts are not considered further in the assessment.

**Table 15-4 Indigenous People's Screening of the Communities near the Project site**

| IFC PS 7: Indigenous People | Characteristics of local communities | IFC PS 7 criteria triggered? |
|---|---|---|
| Self-identification as members of a distinct indigenous cultural group and recognition of this identity bey others. | The household survey indicates that the Project area is predominately inhabited by ethnically Uzbek households (59%), while the remaining proportion are of other nationalities, including Kazakhstan, Korea, and Russia.<br>None of the surveyed households reported belonging to a culturally distinct group. | No |
| Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories. | The local communities have no cultural attachment to the land allocated to the proposed project. | No |
| Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture. | The local communities identified as Uzbeks and therefore are part of the mainstream cultural, economic, social, and political institutions. | No |
| A distinct language, often different from the official language of the country of region. | Uzbek is the primary language spoken in the local communities and is the official language in the Republic of Uzbekistan. | No |

### 15.4.5 Education

The Constitution of the Republic of Uzbekistan guarantees the right to education for all citizens, declaring that "every person has a right to education." Through The National Program for the Development of School Education in 2022-2026, preschool, public and specialized education have been combined into a single system of preschool and school education[76]. The State provides 11 years of free education divided into three phases - primary education (grades 1 to 4); basic secondary education (grades 5 to 9); and secondary education (grades 10 and 11).

#### 15.4.5.1 Highest education attained by surveyed HHHs

The figure below presents the highest education attained by surveyed household heads. Only one household head, among both male- and female-headed households, reported having no

[76] The Government Portal of the Republic of Uzbekistan. 2026. "Education and innovations". Available at: https://gov.uz/en/activity_page/education.

formal education. Survey findings indicate that MHHs have generally attained higher levels of education than their female counterparts, particularly at tertiary level. Overall, approximately 63% of household heads have completed General Secondary education.

#### 15.4.5.2 Highest education attained by surveyed household members

Approximately 56% of the total surveyed household members have completed General Secondary education, with an equal distribution between males and females. Differences in higher education attainment levels are minimal; however, males show slightly higher attainment overall, while females have higher representation in specialized secondary education.

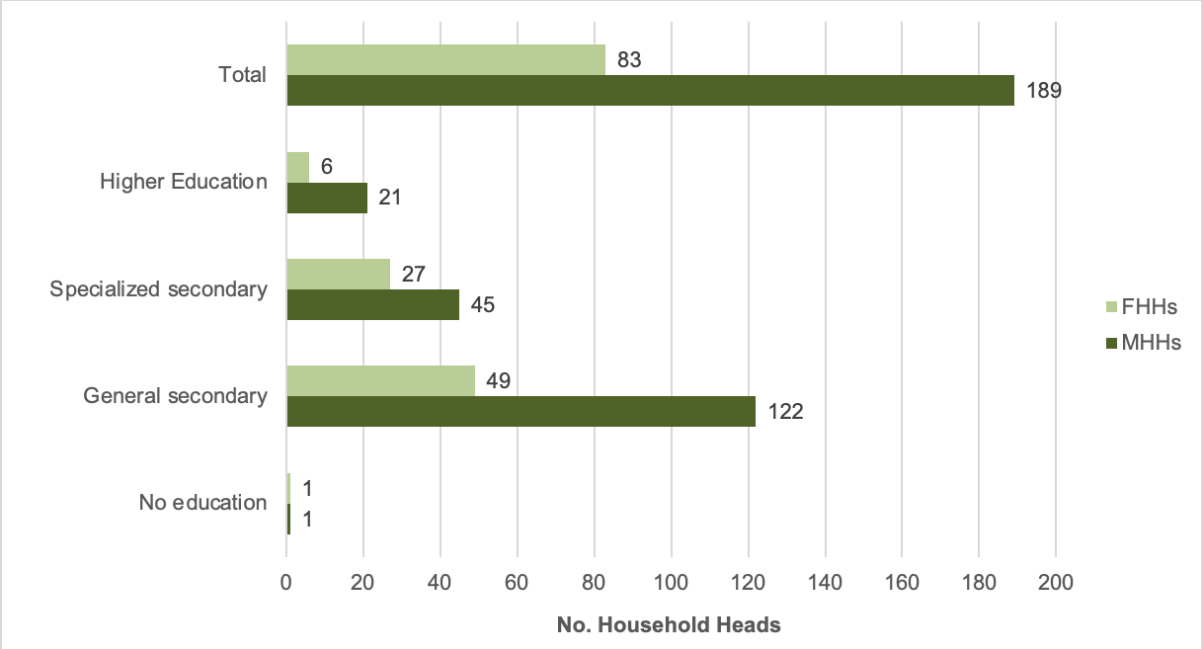



**Figure 15-4 Highest Education Attained by HHHs, Disaggregated by Gender, 2026**

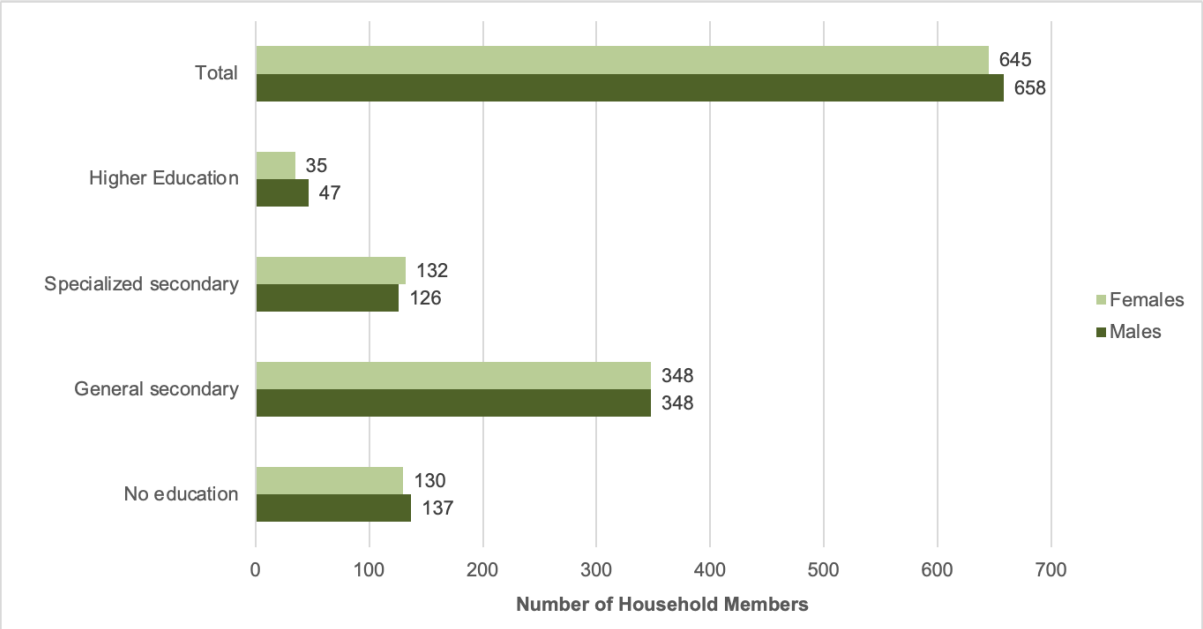



**Figure 15-5 Highest Education Attained by Household Members, Disaggregated by Gender, 2026**

Surveyed households reported that the average distance to education facilities is approximately 2.5 km to preschool, 1.6 km to primary school, and 1.7 km to secondary school. Walking is the predominant mode of transport, with 83% of children walking to primary school and 86% walking to secondary school.

### 15.4.6 Economy and Employment

Uzbekistan is classified as a lower-middle-income country and has set an ambition to achieve upper-middle-income status by 2030. According to the National Statistics Committee of the Republic of Uzbekistan (2025), the national GDP reached UZS 33,592.70 billion (USD 2.77 billion) in January–March 2025, reflecting a 6.8% increase compared to 2024. At the sub-national level, the Gross Regional Product (GRP) of Tashkent City increased from UZS 57,623.90 billion (USD 4.75 billion) in 2024 to UZS 69,905.40 billion (USD 5.76 billion) in 2025. Although this indicates continued economic expansion, the GRP growth index declined from 113% in 2024 to 109% in 2025, suggesting a moderation in growth momentum. The GRP per capita in the Tashkent region reached UZS 40.5 million (USD 3,337), reflecting relatively higher productivity compared to other regions.

Tashkent region contributed 9.7% to national GDP in 2025, while Tashkent City accounted for 21% (National Statistics Committee, 2025). The economy is structurally dominated by services and industry, with agriculture, forestry, and fisheries playing a secondary but still significant role at the regional level. In Tashkent region, the top contributors to GRP are industry, services, and agriculture, forestry, and fisheries, indicating a diversified economic base. This sectoral composition highlights the importance of urban services and industrial production in driving regional economic output and tax generation.

From a public finance perspective, growth in GDP and GRP directly strengthens the state budget through increased tax revenues, particularly from value-added activities in the services and industrial sectors. However, the observed moderation in GRP growth rates may indicate a slight slowdown in fiscal expansion potential, which could affect the pace of public investment and service delivery if not offset by efficiency gains or diversification of revenue sources.

According to Kun.uz (2025), the national unemployment rate decreased to 5.1% within the first half of 2025[77]. As of June 2025, the working-age population was recorded at 20.3 million persons, and of these, 15.4 million were economically active, comprising 14.6 million employed persons. By June 2025, the total number of unemployed people was 781,600. While these figures indicate overall labour market stability, informality remains a key structural challenge. Approximately 5.4 million workers are engaged in informal employment, representing a 22% decline from 2024. Informal employment remains particularly prevalent in agriculture (60%) and construction (41%), driven by lower labour costs, flexible hiring practices, seasonal workforce needs, and limited tax obligations.

The persistence of informal employment has important implications for the employment market and state finances. High informality reduces the tax base, constraining social security contributions and limiting fiscal space for public services. It also creates income insecurity and wage disparities, as formal employees earn on average UZS 1.3 million more than informal workers. According to the Centre for Economic Research and Reforms, approximately one in five workers receive off-the-books wages, further indicating revenue leakage in the labour taxation system.

Overall, while Uzbekistan's and Tashkent's economic indicators reflect steady growth and improving labour market conditions, structural issues such as slowing GRP growth, high informality, and uneven wage distribution continue to influence the effectiveness of economic growth in translating into broader fiscal and employment benefits.

**Table 15-5 GDP and GRP by industry for January-March 2025, in UZS billion (National Statistics Committee, 2025)**

| | GDP (GRP) | Agriculture, forestry and fisheries | Industry | Construction | Services sector | Net taxes on products |
|---|---|---|---|---|---|---|
| Republic of Uzbekistan | 333,592.70 | 30,448.10 | 89,119.90 | 20,865.30 | 179,383.70 | 13,775.70 |
| Tashkent Region | 32,213.90 | 3,548.80 | 14,188.60 | 2,742 | 10,803.20 | 930.60 |
| Tashkent City | 69,905.40 | - | 16,109.50 | 5,663.40 | 41,641.30 | 6,491.20 |

According to Kun.uz (2025), the national unemployment rate decreased to 5.1% within the first half of 2025[78]. As of June 2025, the working-age population was recorded at 20.3 million persons, and of these, 15.4 million were economically active, comprising 14.6 million employed persons. By June 2025, the total number of unemployed people was 781,600.

The share of informally employed persons in 2025 was recorded at 5.4 million, a 22% decrease from 2024. The informal sector reportedly accounts for 60% and 41% workers in the agricultural and construction sectors respectively. Kun.uz (2025) reported that factors for informal employment include lower costs (49%), ease of hiring and dismissal (36%), attracting season employees (33%), and the absence of tax obligations (13%). According to the Centre for Economic Research and Reforms, one in five workers receive wages "under the table".

[77] Kun.uz. 2025. "Unemployment rate in Uzbekistan falls to 5.1% in H1 2025". Available at: https://kun.uz/en/news/2025/08/19/unemployment-rate-in-uzbekistan-falls-to-51-in-h1-2025#:~:text=Among%20the%20economically%20inactive%20population,conditions%20for%20engaging%20seasonal%20workers.

[78] Kun.uz. 2025. "Unemployment rate in Uzbekistan falls to 5.1% in H1 2025". Available at: https://kun.uz/en/news/2025/08/19/unemployment-rate-in-uzbekistan-falls-to-51-in-h1-2025#:~:text=Among%20the%20economically%20inactive%20population,conditions%20for%20engaging%20seasonal%20workers.

Employees hired under contracts earn on average UZS 1.3 million more than those working informally.

#### 15.4.6.1 Study Area

The following table presents the employment status of surveyed household heads, disaggregated by gender. A substantial proportion of both male-headed households and female-headed households are pensioners, accounting for 39% and 26%, respectively. Approximately 23% of MHHs are formally employed, compared to 8% of FHHs. Unemployment is higher among FHHs (7%) than MHHs (4%). Similarly, self-employment is more common among MHHs (21%) than FHHs (7%).

Overall, the findings indicate notable gender disparities in employment patterns, with MHHs more likely to be formally employed or self-employed, while FHHs experience higher levels of unemployment and lower participation in income-generating activities.

**Table 15-6 Surveyed Household Heads' Employment Status, Disaggregated by Gender, 2026**

| Employment Status | Male-headed households | | Female-headed households | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Self-employed | 40 | 21% | 6 | 7% |
| Employment in state organization | 22 | 12% | 6 | 7% |
| Employment in private sector | 18 | 10% | 1 | 1% |
| Farmer | 2 | 1% | 1 | 1% |
| Wage worker in agriculture | 4 | 2% | 1 | 1% |
| Wage worker in other sectors | 6 | 3% | 1 | 1% |
| Pensioner | 74 | 39% | 49 | 26% |
| Unemployed | 8 | 4% | 6 | 7% |
| Other | 15 | 8% | 12 | 14% |
| Total | 189 | 100% | 83 | 100% |

The FGD findings revealed that primary livelihood activities vary by gender and vulnerability status. The men reported primary engagement in seasonal agriculture, construction sector, and out-migration to Korea and Russia as labourers. Women and youth reported their engagement in informal work in textile factories, home-based agricultural production and temporary work. Community members further reported that vulnerable groups predominantly rely on social assistance from government, including child benefits, disability support, support to single-headed households, amongst others. Participants noted that employment barriers encompass skills gaps, caregiving duties, limited transport options, and low digital literacy, limiting access to opportunities such as e-auctions.

FGD findings further indicate that winter is the most difficult season, owing to limited employment opportunities, the return of migrant workers, and increased household expenses. Other challenges included the lack of labour protections in the informal sector.

### 15.4.7 Agricultural and Livestock Rearing Activities

FGD participants noted that land resources are a critical source of household income. Vulnerable households without access to land, such as those in apartment buildings, are more dependent on government social assistance. Women from these households reported experiencing particularly high-income insecurity.

Approximately 72% of surveyed households reported using their dehkan plots for cropping or livestock keeping. The remaining 28% cited reasons for non-use, including irrigation constraints, lack of time, or use of the land for trees and flowers.

The figure below illustrates the main sources of crop irrigation reported by surveyed households. Surface and drainage water were the most used sources (29%), followed by groundwater (21%) and the centralized water supply system (19%).

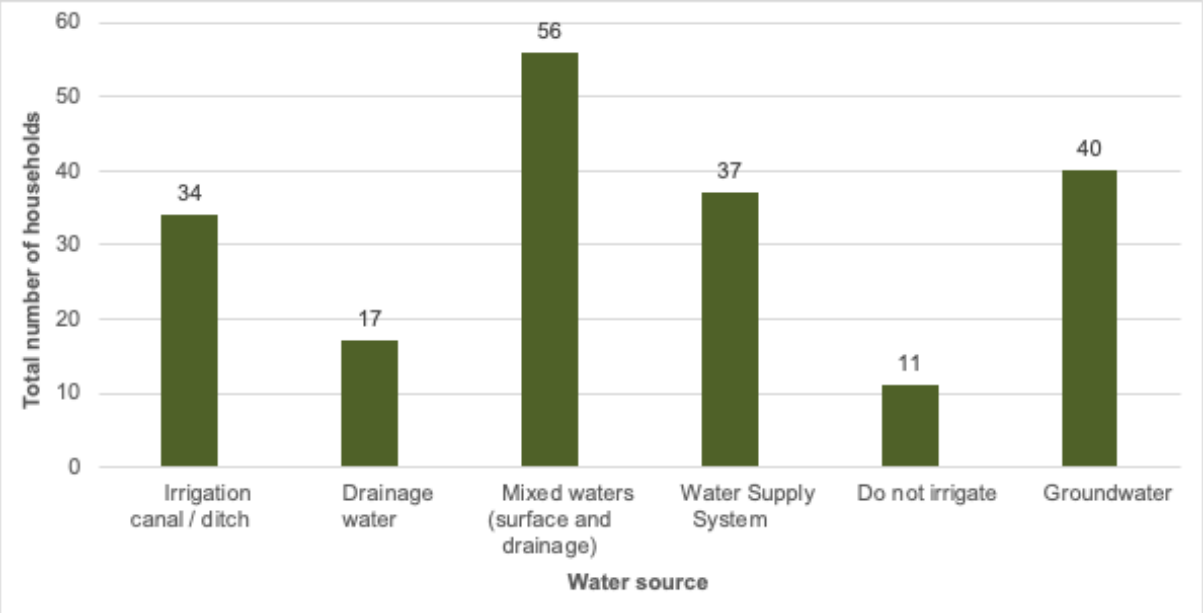



**Figure 15-6 Main Source of Irrigation by Type, 2026**

Among male-headed households, 34% identified irrigation issues, 20% indicated there was no one available to manage the plot, and 17% reported time constraints. Among female-headed households, 25% stated there was no one to manage the plot, 25% cited lack of time, and 20% reported irrigation challenges.

The figure below provides information on the main crops cultivated by surveyed households. Male-headed households primarily cultivate vegetables, grapes, and other fruits, while female-headed households mainly grow potatoes, vegetables, and fruits, in addition to corn forage and other forage crops. In 2025, male-headed households reported total sales of 800 kg of corn, 8,140 kg of vegetables, 580 kg of potatoes, 110 kg of grapes, and 50 kg of fruits.

Female-headed households reported total sales of 1,000 kg of corn forage, 400 kg of vegetables, and 400 kg of fruits.

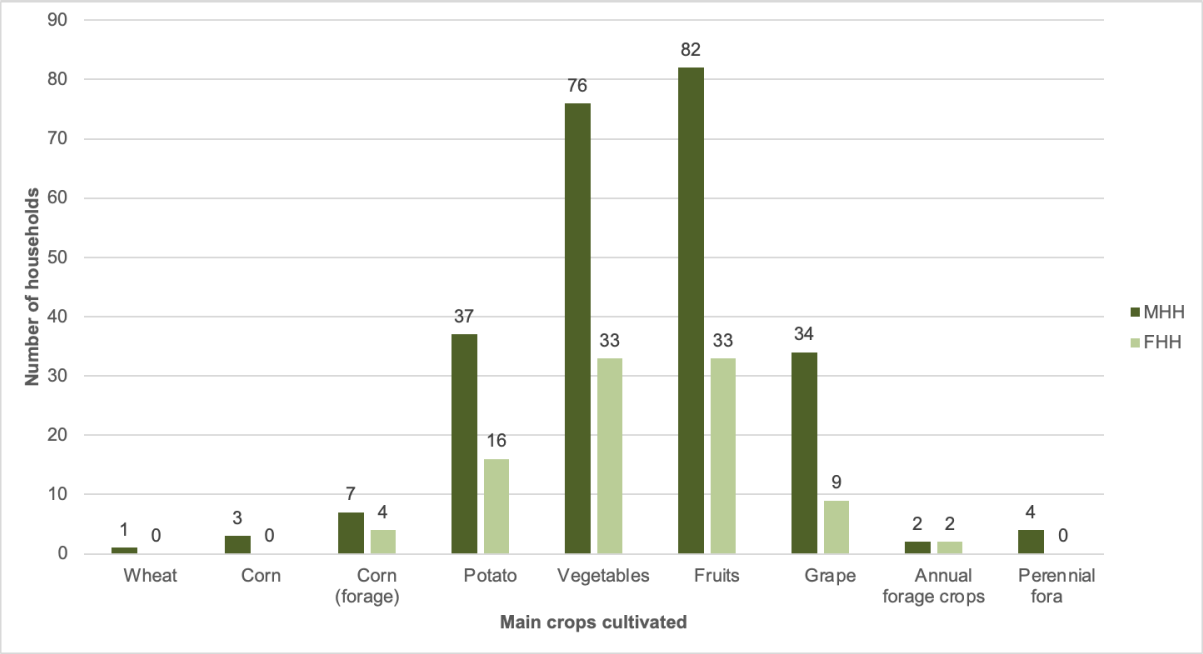



**Figure 15-7 Main Crops Cultivated by Surveyed Households, Disaggregated by Gender, 2026**

Approximately 51% of male-headed households and 39% of female-headed households reported owning livestock and poultry. The figure below presents the total number of livestock and poultry reported by households, disaggregated by gender. Poultry is the most kept among both male- and female-headed households, followed by cattle and sheep.

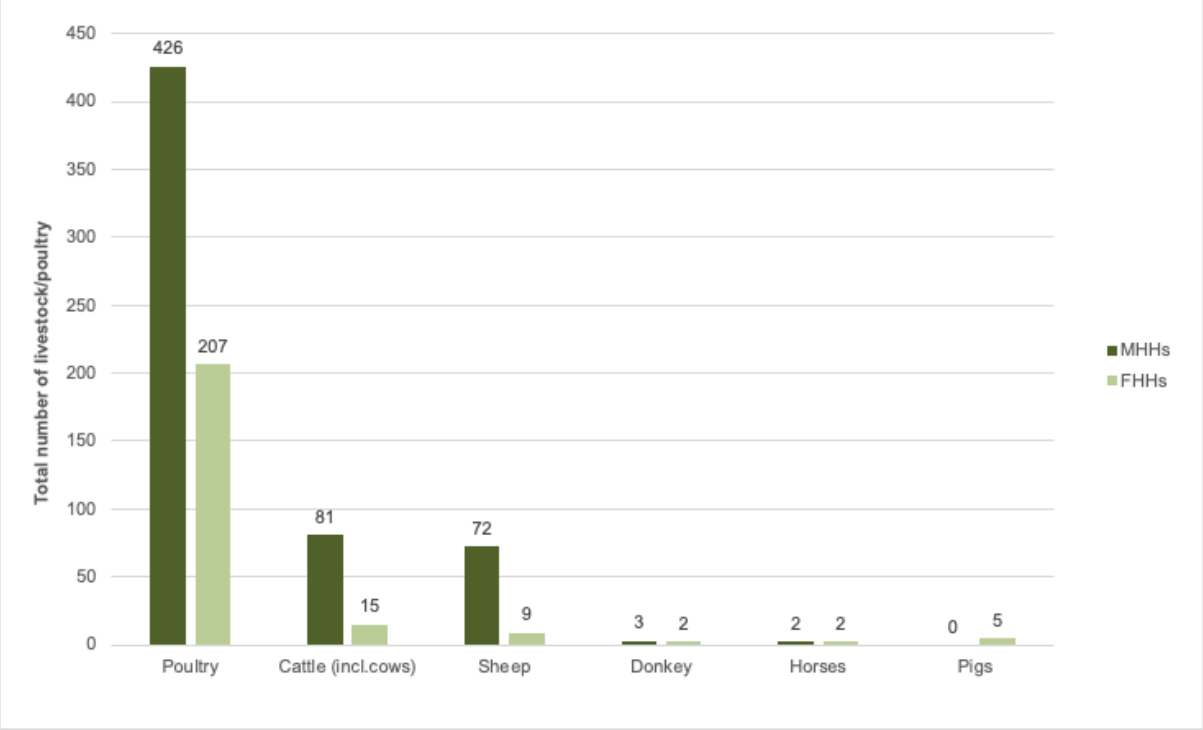



**Figure 15-8 Total Number of Livestock and Poultry Kept by Surveyed Households, Disaggregated By Gender, 2026**

A total of 81 households reported purchasing animal feed, 26 cultivated feed crops, 16 relied on local irrigated grazing lands, and three relied on dehkan pastures for livestock grazing.

## 15.4.8 Income and Expenditure

### 15.4.8.1 Income

In January-March 2024, the national share of income from work, including income from employees and income from self-employment amounted to 59.2% (National Statistics Committee, 2025). The highest growth rates of wage earners were recorded in Andijan region (128%), and Tashkent city (127%). The share of social transfers in Tashkent region amounted to 12.8% in Tashkent region.

The table below presents the average monthly income of surveyed households by source. Salaries and wages constitute the primary source of income for both MHHs and FHHs with significantly higher earnings reported among MHHs. On average, income from salaries and wages among MHHs exceeds that of FHHs by 1,848,302.88. Income from most other sources was higher among MHHs, except for remittances, which were more significant among FHHs.

**Table 15-7 Average Monthly Income by Source, Disaggregated by Gender, 2026**

| Source of Monthly Income | Average Monthly Income of MHHs | | Average Monthly Income of FHHs | |
|---|---|---|---|---|
| | UZS | USD | UZS | USD |
| Salaries and wages | 7,015,379.19 | 578.15 | 5,169,076.31 | 426.00 |
| Income from personal subsidiary plot (animal production, crop production) | 194,334.22 | 16.02 | 55,020.08 | 4.53 |
| Production of goods and service providing | 10,802.47 | 0.89 | 3,815.26 | 0.31 |
| Official transfers and social aid (pensions, scholarship and others) | 747,738.98 | 61.62 | 750,283.13 | 61.83 |
| Leasing of property and premises | 36,313.93 | 2.99 | - | - |
| Income from investments, dividends and bank | 132.28 | 0.011 | - | - |
| Remittances | 145,458.55 | 11.99 | 219,477.91 | 18.09 |
| Other | 49,801.59 | 4.10 | 79,236.95 | 6.53 |

Focus group discussions indicated that households reliant on informal and daily-wage employment in textiles, agriculture, and service industries face acute income insecurity, with earnings insufficient to meet basic needs. According to community members, social assistance provides a basic safety net, but without supplementary income, households remain vulnerable to seasonal economic shocks.

In June 2025, a minimum monthly wage was established by Presidential Decree No. UP-91/2025 at approximately UZS 1.2 million (USD 93.92). The figure below illustrates the average total monthly household income of surveyed households. Overall, the findings indicate that MHHs report higher average monthly incomes than FHHs. Approximately 29% of MHHs earn between UZS 5,000,000 (USD 412.06) and 8,000,000 (USD 659.30) per month, followed by 26% earning between UZS 3,000,000 (USD 247.24) and 5,000,000 (USD 412.06), and 22% earning less than UZS 3,000,000 (USD 247.24). Approximately 37% of FHHs earn between UZS 3,000,000 and 5,000,00 per month, followed by 23% earning between UZS 5,000,000 and 8,000,000 and 19% earning less than UZS 3,000,000.

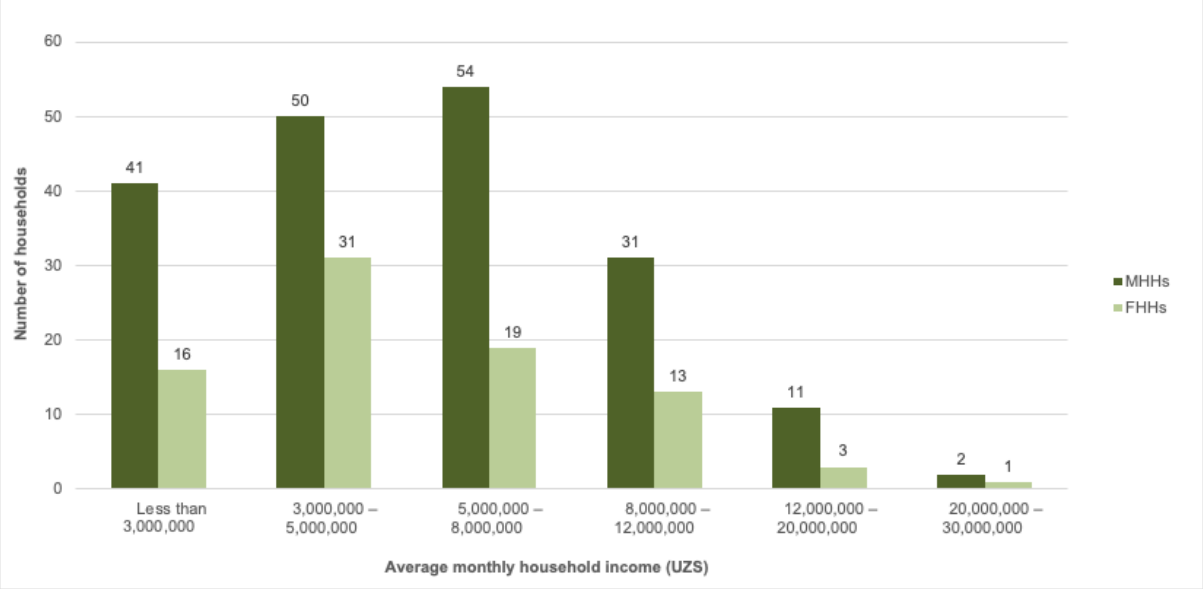



**Figure 15-9 Average Monthly Income Received by Surveyed Households by Category, Disaggregated by Gender, 2026**

### 15.4.8.2 Expenditure

The table below presents the average monthly household expenditure of surveyed households. Overall, the expenditure patterns suggest gender-based differences in spending priorities and needs. Food constituted the largest expenditure category for both MHHs and FHHs, followed by housing and public utilities. MHHs spent more on education compared to FHHs, whereas FHHs allocate a higher proportion of their expenditure to health.

**Table 15-8 Average Monthly Household Expenditure, Disaggregated by Gender, 2026**

| Type of Monthly Expenditure | Average Monthly Expenditure of MHHs | | Average Monthly Expenditure of FHHs | |
|---|---|---|---|---|
| | UZS | Proportion | UZS | Proportion |
| Food and groceries including eating out | 2,109,788.36 | 34% | 2,007,108.43 | 36% |
| Housing and public utilities | 1,254,920.63 | 20% | 1,064,216.87 | 19% |
| Transport costs of all household members | 571,798.94 | 9% | 518,072.29 | 9% |
| Communication | 238,148.15 | 4% | 225,060.24 | 4% |
| Education | 477,798.94 | 8% | 196,506.02 | 4% |
| Healthcare and medicine | 460,529.10 | 7% | 603,493.98 | 11% |
| Tax and payments, including insurance, credit, and similar | 782,888.89 | 13% | 767,963.86 | 14% |
| Other costs | 293,121.69 | 5% | 99,759.04 | 2% |
| **TOTAL** | **6,188,994.71** | **100%** | **5,552,180.72** | **100%** |

## 15.4.9 Accommodation, Living Conditions and Household Amenities

### 15.4.9.1 Accommodation

Among surveyed MHHs, the largest proportion (25%) reside in four-bedroom houses, followed by 22% in five-bedroom houses and 15% in six-bedroom houses. A further 19% live in houses with six or more bedrooms, while 19% reside in two- to three-bedroom houses. Among FHHs, 28% live in four-bedroom houses, 23% in five-bedroom houses, and 21% in two-bedroom houses. The remaining 22% reside in houses with six to eleven bedrooms, while 7% live in one- to two-bedroom houses.

Overall, the findings suggest relatively similar housing patterns across MHHs and FHHs, with most residing in medium- to large-sized homes, though a slightly higher proportion of FHHs are concentrated in smaller dwellings.

FGD findings indicate that while some community members rent land plots via the e-auction system, others are unable to participate due to low digital literacy and limited understanding of the platform's procedures.

The figure below presents the total inhabited dwelling area, disaggregated by gender of household head. Most MHHs reside in dwellings ranging from 100-130 m², while FHHs are more commonly located in dwellings of 70-99 m².

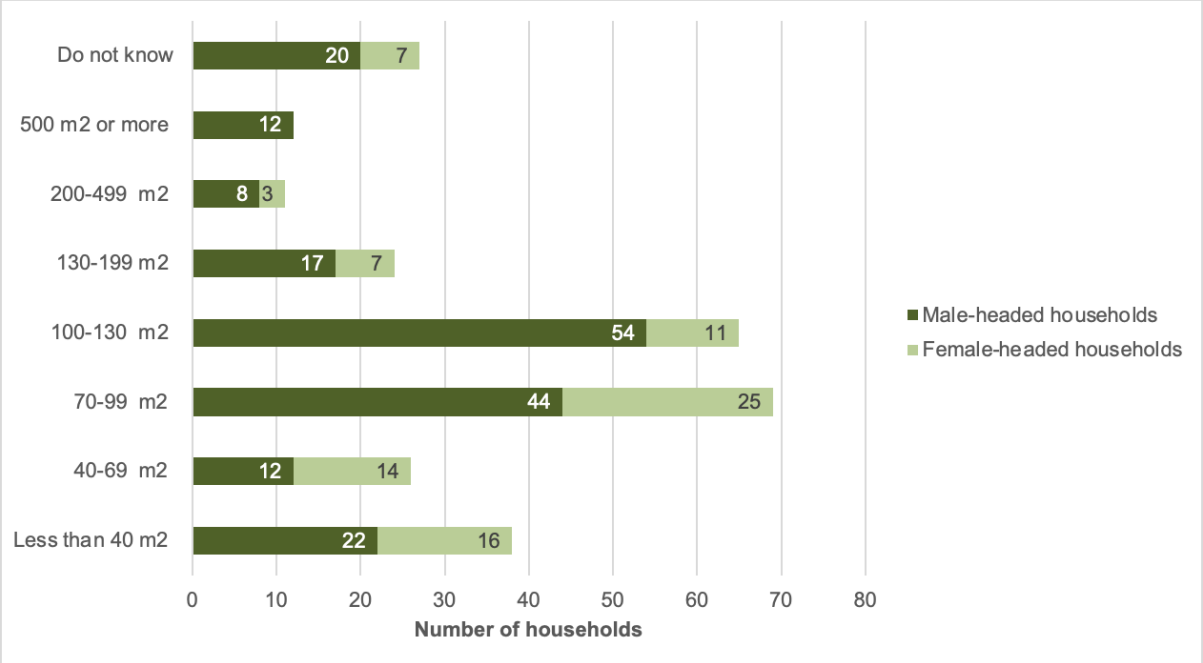



**Figure 15-10 Total Inhabited Area of Dwelling, Disaggregated by Gender, 2026**

### 15.4.9.2 Source of Water

The table below presents information on surveyed households' sources of drinking water. The most common source of drinking water for both MHHs and FHHs is water pumping units[79], reported by 61% of MHHs and 67% of FHHs. Access to the centralized water supply was reported by 13% of FHHs and 10% of MHHs.

[79] Industrial and municipal water supply consists of modern water pumping technology ranging from large, centralized irrigation pumping stations with high-capacity centrifugal pumps, to smaller electric and diesel pumps in local water supply and farming.

**Table 15-9 Surveyed Households' Source of Drinking Water, Disaggregated by Gender, 2026[80]**

| Source of drinking water | Male-headed households | | Female-headed households | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Central water pipe in the house | 20 | 11% | 11 | 13% |
| Outside water supply system | 11 | 6% | 2 | 2% |
| Local artesian well | 6 | 3% | 1 | 1% |
| Water pumping units (kachalka) | 116 | 61% | 56 | 67% |
| Delivered and purchased water | 20 | 11% | 9 | 11% |
| Bottled water from shops (or vending machine) | 13 | 7% | 3 | 4% |
| Water from river, canals, ponds and ditches | 2 | 1% | 1 | 1% |
| Others | 1 | 0.5% | 0 | 0% |

The table below presents information on surveyed households' sources of water for other domestic needs. A significant proportion of both MHHs and FHHs use water from water pumping units, at 81% and 83% respectively.

**Table 15-10 Surveyed Households' Source of Water for Other Domestic Needs, Disaggregated by Gender, 2026[81]**

| Source of Water for other domestic needs (washing, cleaning etc.) | Male-headed households | | Female-headed households | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Central water pipe in the house | 19 | 10% | 9 | 11% |
| Outside water supply system | 3 | 2% | 2 | 2% |
| Local artesian well | 6 | 3% | 1 | 1% |
| Natural springs | 1 | 0.5% | 1 | 1% |
| Water pumping units (kachalka) | 153 | 81% | 69 | 83% |
| Delivered and purchased water | 3 | 1% | 0 | 0% |
| Water from river, canals, ponds and ditches | 3 | 1% | 1 | 1% |
| Others | 1 | 0.5% | 0 | 0% |

### 15.4.9.3 Access to Centralized Sewage System

The majority of both surveyed MHHs and FHHs reported using pit latrines (84% and 88%, respectively). A higher proportion of MHHs have access to flush toilets, with 7% reporting indoor and 9% outdoor facilities. Among FHHs, 11% reported access to indoor flush toilets, while 1% have outdoor flush toilets.

[80] Totals may not equal 100% because of rounding.

[81] Totals may not equal 100% because of rounding.

### 15.4.9.4 Access to Centralized Heating System

Approximately 52% of surveyed households reported using gas stoves for heating, while 33% rely on dual-circuit heating stoves. Other heating sources include solid-fuel water-heating stoves (6%) and firewood (4%). A small proportion (5%) of MHHs reported using air conditioners or other electric heaters.

### 15.4.9.5 Condition of Public Utilities

The figure below presents the overall condition of public utilities, including electricity supply, centralized gas supply, centralized sewage systems, and waste removal services.

Nearly all surveyed households across the makhallas reported reliable access to electricity; however, a small number of households in Aranshi, Yongichkoli, Kim Pen Khva, Khalkobod, and Yangiyul indicated that electricity supply is subject to frequent interruptions.

A significant majority (91%) reported the absence of a centralized sewage system in their makhallas. Limited availability of centralized sewage services was noted by a few households in Kim Pen Khva, Tarakkiyot, Khalkobod, Yangiyul, and Surum.

Waste removal services were reported to be available in most surveyed makhallas.

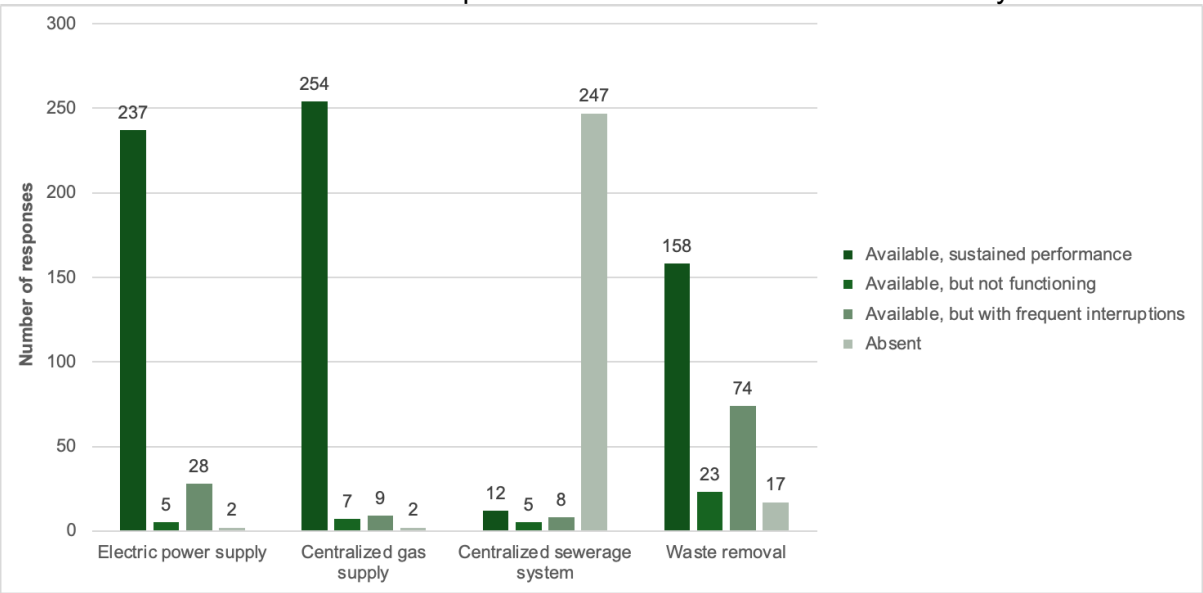



**Figure 15-11 Condition of Public Utilities, 2026**

### 15.4.9.6 Access to Internet Services

Data on household amenities provides valuable insight into the economic status, living conditions, and access to information and communication technology (ICT) within households. The figure below presents gender-disaggregated data on surveyed households' access to WiFi connection. The proportion of MHHs and FHHs that mentioned access to WiFi was 54% and 95% respectively.

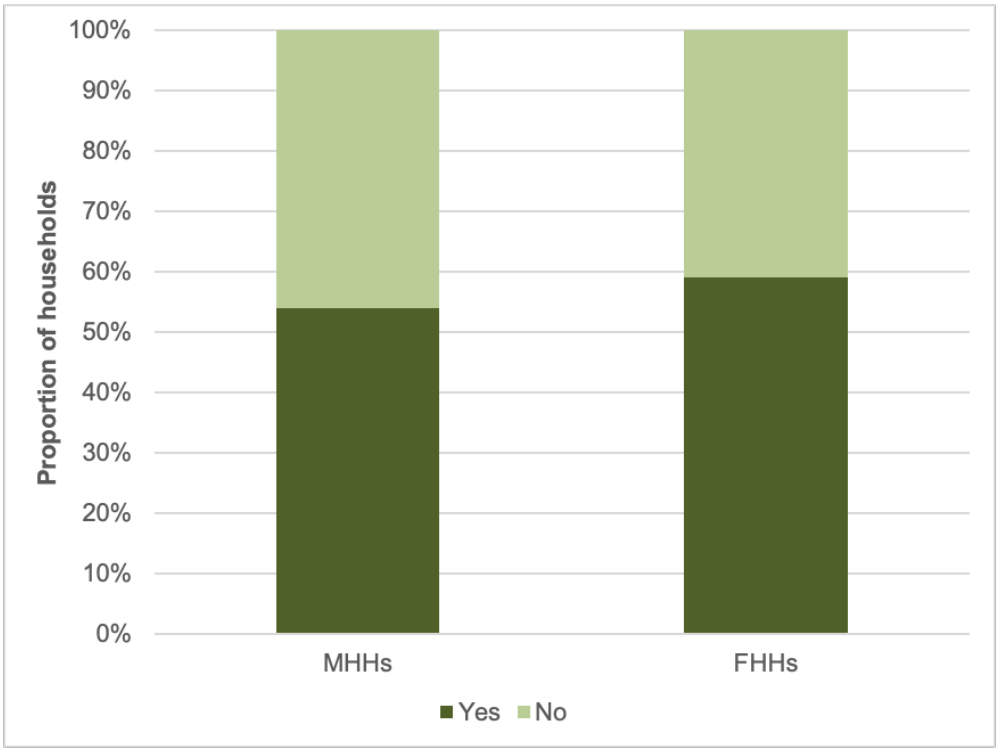



**Figure 15-12 Households connection to WiFi service, Disaggregated by Gender, 2026**

The following table illustrates the various household amenities owned by the surveyed households. MHHs own more household items compared to the FHHs.

### 15.4.9.7 Ownership of Household Assets

**Table 15-11 Surveyed Households' Ownership of Household Items, Disaggregated by Gender, 2026**

| Name of Makhalla | Aranshi | Yongichkoli | Kim Pen Khva | Tarakkiyot | Khalkobod | Yangiyul | Dustlik | Surum | Kushek | Sergeli | Beruniy | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Male-Headed Households** | | | | | | | | | | | | |
| Air conditioner | 3 | 2 | 7 | 1 | 4 | 2 | 2 | 7 | 6 | 6 | 4 | 44 |
| Computer/laptop | 2 | 2 | 3 | 5 | 4 | 1 | 2 | 8 | 3 | 1 | 5 | 36 |
| Motorcycle, or electric moped | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 3 | 1 | 4 | 2 | 14 |
| Washing machine | 9 | 8 | 21 | 8 | 14 | 3 | 11 | 26 | 16 | 12 | 17 | 145 |
| Generator | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 6 |
| Chainsaw | 1 | 1 | 3 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 8 |
| Tractor | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| Solar water heater | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Electric water boiler | 7 | 1 | 7 | 7 | 7 | 1 | 6 | 10 | 5 | 8 | 5 | 64 |
| Water pump (electric or diesel | 10 | 3 | 20 | 9 | 10 | 5 | 11 | 22 | 10 | 5 | 16 | 121 |
| **Female-Headed Households** | | | | | | | | | | | | |
| Air conditioner | 0 | 1 | 7 | 1 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 16 |
| Computer/laptop | 1 | 1 | 4 | 0 | 3 | 0 | 0 | 1 | 0 | 1 | 2 | 13 |
| Motorcycle/moped | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 4 |
| Washing machine | 1 | 1 | 14 | 4 | 7 | 4 | 7 | 6 | 10 | 7 | 7 | 68 |
| Generator | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Chainsaw | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Tractor | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Electric water boiler | 0 | 2 | 3 | 2 | 2 | 1 | 2 | 2 | 1 | 3 | 0 | 18 |
| Water pump (electric or diesel) | 1 | 3 | 9 | 2 | 7 | 3 | 4 | 6 | 5 | 3 | 7 | 50 |

Households' assessment of infrastructure and services is presented in the figure below. Overall, internal roads, public transport, schools, clinics, and police stations were rated as good. However, respondents from Kim Pen Khva, Dustlik, Surum, Kushek, and Sergeli assessed internal roads as poor or very poor.

Hospitals were most commonly rated as fair (40%). While police stations were generally assessed as good, households in Yangiyul and Yongichokoli rated them as poor or very poor.

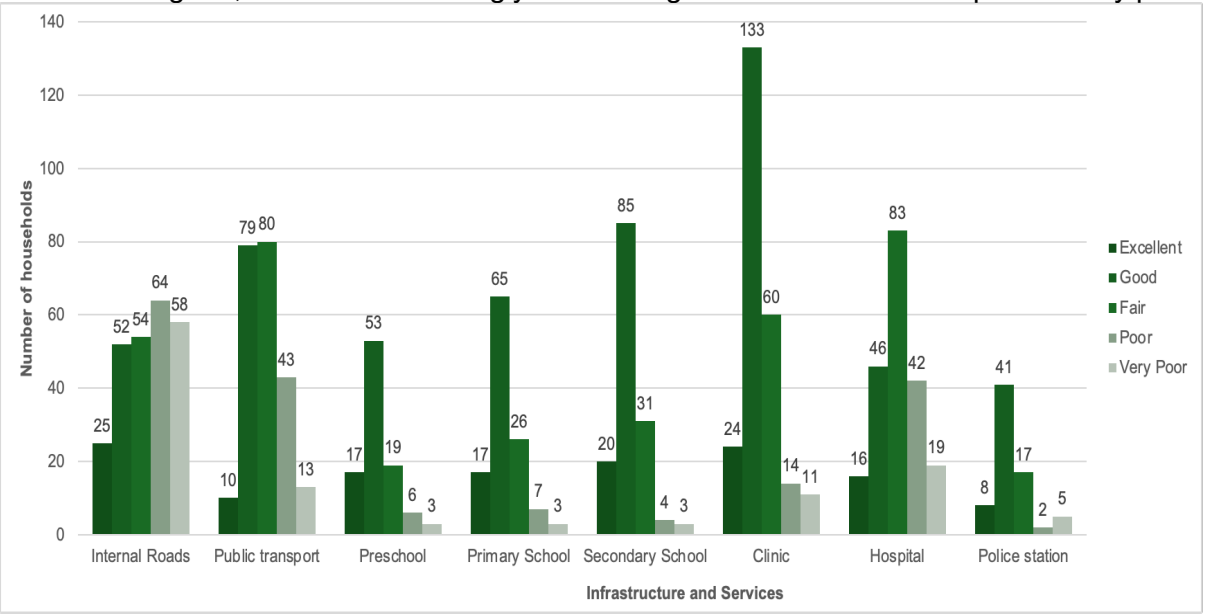



**Figure 15-13 Households' Assessment of Infrastructure and Services, 2026**

### 15.4.10 Health

Uzbekistan provides a basic health service package free of charge to all citizens through taxation, in line with the 1996 Law on Health Protection. The package includes primary care, emergency care, and specialized care for groups of the population classified by the government as vulnerable. It also includes care for certain "socially significant and hazardous conditions", including diseases such as poliomyelitis, tuberculosis (TB), leprosy, HIV/AIDS, and syphilis, and certain noncommunicable diseases (NCDs) such as cancer.

Between January 2020 to 2024, the number of hospitals in Uzbekistan increased by 227 units, from 1,205 to 1,432[82]. According to the Statistics Agency under the President of the Republic of Uzbekistan (2025), there are 114 hospitals in Tashkent region, and 167 hospitals in Tashkent city. A total of 587 outpatient and polyclinic institutions were recorded in Tashkent region as of 2024. Tashkent city has the highest number of outpatient and polyclinic institutions in Uzbekistan, at 1,158. The number of hospital beds in Tashkent region and Tashkent city was recorded to be 17,400 and 25,900 respectively.

As of January 2024, the gender distribution of doctors in Uzbekistan comprised 49,600 females and 56,100 males (Statistics Agency under the President of the Republic of Uzbekistan, 2024). Despite the overall higher number of male doctors nationally, women predominate in most regions, including Tashkent City, where 13,200 female doctors were recorded compared to 9,900 male doctors.

The population faces health risks linked to poor diet, hypertension, smoking, and air pollution, with men more likely to engage in behavioural risk factors such as smoking. Overall, women's

[82] Statistics Agency Under the President of The Republic of Uzbekistan. 2024. "Main statistical indicators of health care in The Republic of Uzbekistan". Available in: https://stat.uz/img/eng_zdravookhraneniya_2024-ch_p65538.pdf

health indicators are stronger than men's in Uzbekistan. In 2023, life expectancy at birth was 72.5 years for males and 76.9 years for females. In 2025, a total of 177,100 deaths were recorded, an increase of 2,700 compared to 2024, including 97,500 males (55%) and 81,400 females (46%). Deaths from circulatory system diseases rose significantly, from 24,800 to 104,500 over the year. Cancer-related deaths also increased to 15,999 in 2025, representing an additional 3,530 deaths compared to 2024. The 2023 under-five mortality rate was 13.3 deaths per 1,000 live births[83].

In 2024, the overall morbidity rate was 60,309 cases per 100,000 population, representing a decrease of 512 compared to 2023. The morbidity rate in Tashkent Region was 58,435 per 100,000, while the highest rate was recorded in Tashkent City at 151,985 per 100,000, reportedly reflecting its high population density. The figure below shows the national morbidity rates per 100,000 people for the top five diseases (Statistics Agency under the President of the Republic of Uzbekistan, 2024). Respiratory diseases recorded the highest morbidity rate at 12,894 patients per 100,000 people.

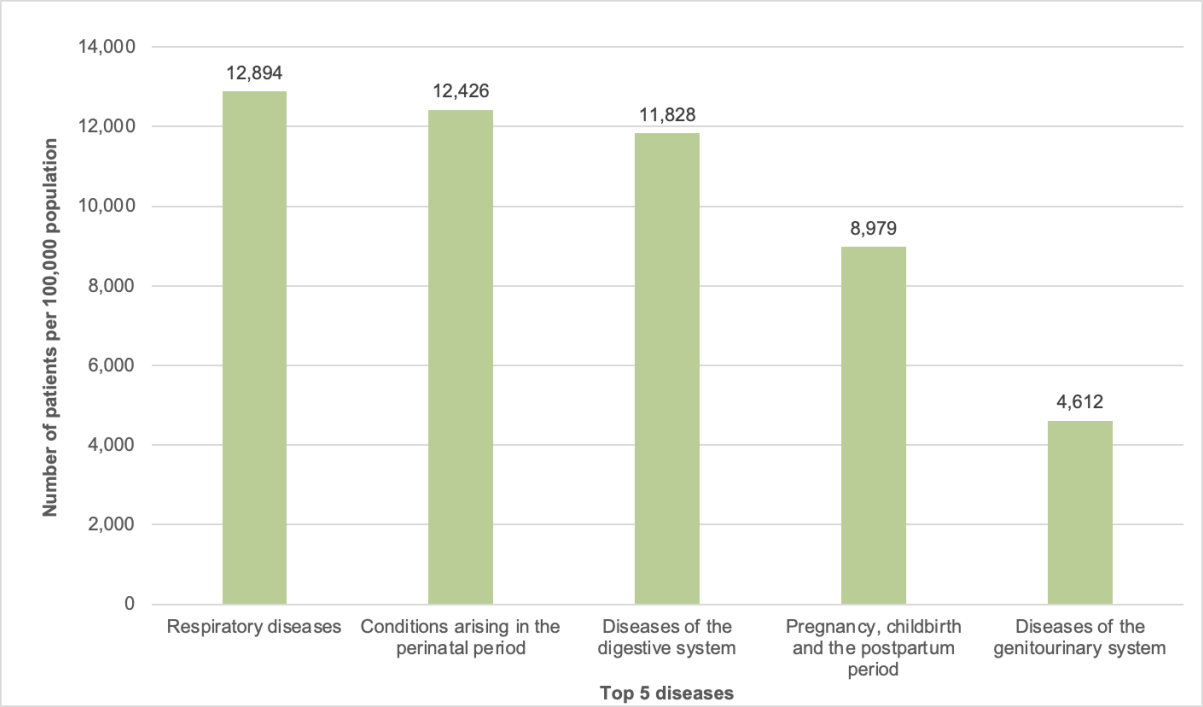



**Figure 15-14 Population Morbidity Rates for the Top 5 Diseases in Uzbekistan, 2024**

### 15.4.10.1 Study Area

Focus group discussions indicated that adults are commonly affected by cardiovascular and rheumatic diseases, diabetes, and cancer, whereas children experience leukaemia and hepatitis. Tuberculosis was noted as prevalent, often associated with exposure to water and air pollution. Female participants emphasized that chronic disease, caregiving burdens, and limited household income exacerbate their health-related stress.

Surveyed households reported that the average distance to the nearest clinic is approximately 2.7 km, while the nearest hospital is located around 21 km away. Walking is the most common mode of transport to the clinic (61%), whereas access to the hospital is primarily by taxi (38%) and public transport (35%).

[83] UNICEF. 2026. "Country Profiles: Uzbekistan". Available at: https://data.unicef.org/country/uzb/#:~:text=Uzbekistan's%20infant%20mortality%20rate%20is%2013%20deaths,per%201%2C000%20live%20births%20*%20**Persons**%2035%2C652%2C307.

### 15.4.11 Vulnerable Groups

The National Agency for Social Protection under the President of the Republic of Uzbekistan delivers social services and assistance to vulnerable groups, including low-income families, elderly persons living alone, persons with disabilities, individuals with serious illnesses, and children with physical or mental impairments requiring long-term care. Support is also provided to orphans, children from single-parent households, and victims of harassment and violence.[84]. The top five requests comprised allowances for children from low-income families (33%), assistance to cover food, clothing, and other essential expenses (10%), allocation of a social card (9%), disability pension payments (8%), and other issues (7%)[85].

The table below presents national data from the National Agency for Social Protection (2026) on the total number of vulnerable people by criteria. The proportion of families living in poverty is 1% of the national population, while persons living with disabilities account for 3% of the population.

**Table 15-12 Vulnerable Groups by Criteria as of 1st January 2026**

| Vulnerability Criteria | Total number |
|---|---|
| Families living in poverty | 391,888 |
| Family members living in poverty | 1,652,568 |
| Families receiving benefits | 568,296 |
| Child allowance and financial assistance for low-income families | 568,26 |
| Maternity allowance | 14,113 |
| Persons living with disabilities | 1,060,111<br>480,357 (45%) women<br>579,754 (54%) men |
| Children living with disabilities | 170,413<br>Group I: 96,859<br>Group II: 710,434<br>Group III: 82,405 |
| Elderly and persons with disabilities in need of care | 30,804<br>22,493 (73%) women<br>8,311 (26%) men |
| Elderly people living alone | 19,163<br>14,565 (76%) women<br>4,598 (24%) men |
| Persons with disabilities living alone | 3,677<br>2,560 (70%) women<br>1,117 (30%) men |

[84] National Agency for Social Protection under the President of the Republic of Uzbekistan. 2026. “Social services and assistance”. Available in: https://ihma.uz/en/services.

[85] National Agency for Social Protection under the President of the Republic of Uzbekistan. 2026. “Statistics”. Available at: https://ihma.uz/en/statistic.

### 15.4.11.1 Study Area

The figure below presents the self-assessed income classification of surveyed households, disaggregated by gender. Approximately 81% of the surveyed households classified themselves as lower-income, with 57% headed by males and 43% by females. A smaller proportion of the total surveyed households classified themselves as poor and upper-middle income households, at 15% and 4% respectively. Among the surveyed households, only those in Yongichkoli and Sergeli did not consider themselves poor. Only 2 FHHs from Kim Pen Khva considered themselves as upper-middle income households.

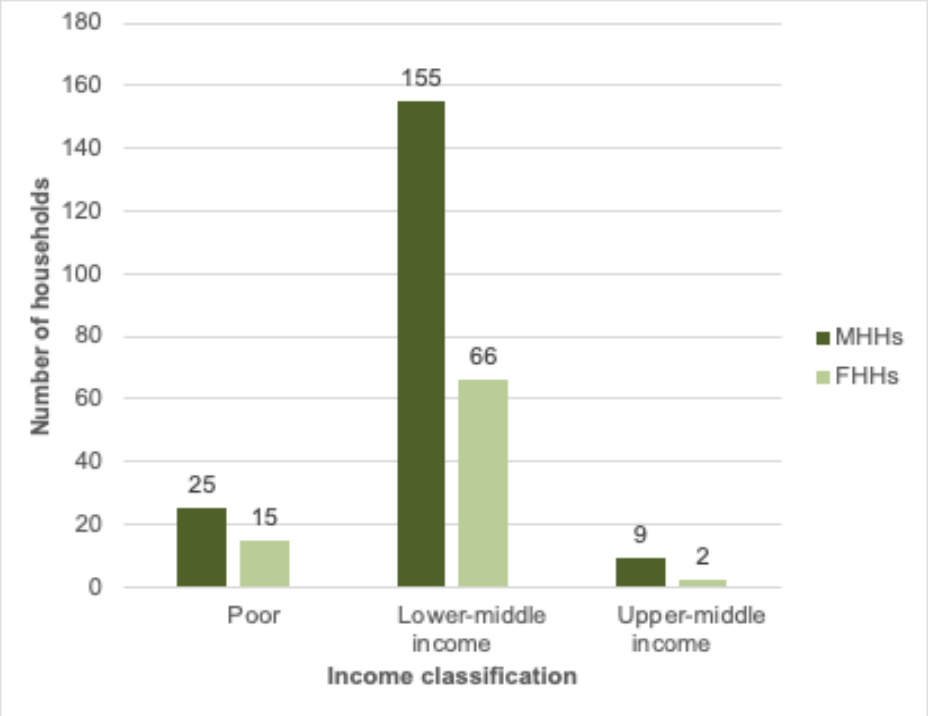



**Figure 15-15 Income Classification of Surveyed Households, Disaggregated by Gender, 2026**

The figure below presents the total number of surveyed households by vulnerability criteria. Vulnerable households accounted for approximately 13% of the total surveyed households across the makhallas. This was comprised of 24 (67%) female-headed households, and 12 (33%) male-headed households.

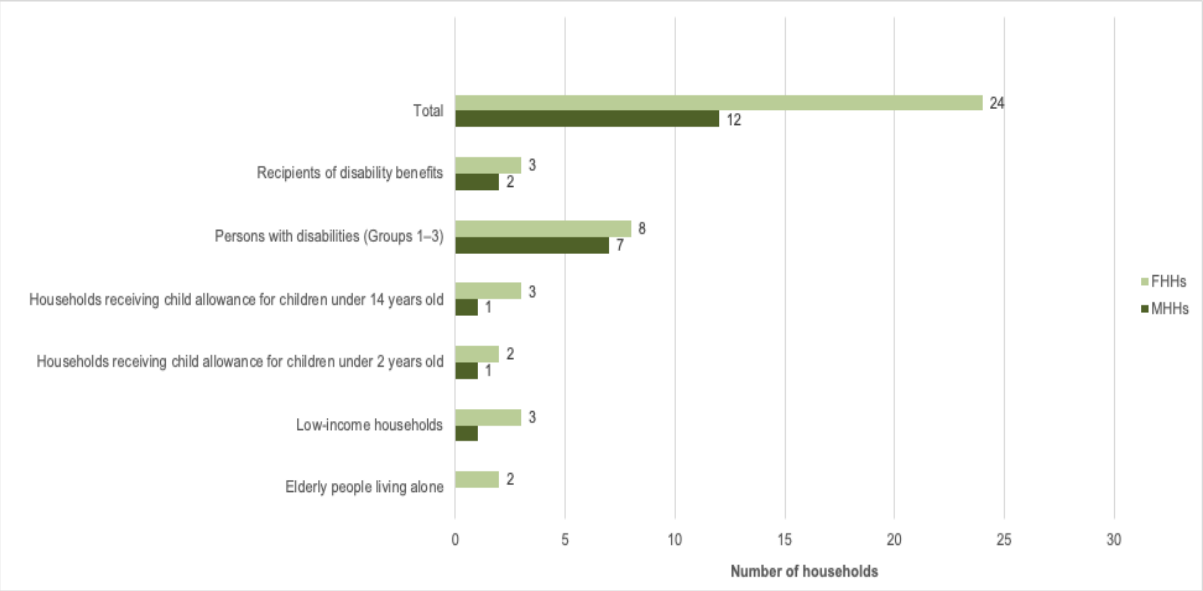



**Figure 15-16 Number of Vulnerable Households, Disaggregated by Gender, 2026**

### 15.4.12 Gender Equality

Uzbekistan is working towards promoting gender equality in public and state affairs, for example, through the enactment of the Law on Guarantees of Equal Rights and Opportunities for Women and Men (2019) and the National Gender Strategy (2021-2030). For the first time, the share of women in public administration reached 35%[86]. In Uzbekistan, the labour market is marked by gendered industry patterns (UNICEF, 2019; ILO, 2023), with women largely in the public sector and men in higher-paying technical roles.

In rural and urban areas alike, women are often employed in the informal sector, earning lower wages, and carry out most unpaid household work, while men primarily engage in paid, productive labour.

In 2011, 56% of women and 67% men thought that when jobs are scarce, men should have the greater right to a job than women[87]. Income generated by women is assumed to be a secondary income to that generated by men.

The table below presents the gender equality indicators benchmarking. Uzbekistan performed strongly in the Gender Inequality Index, whilst more effort is required to support women in the legal environment and supporting women's and girl children's achievements in three basic dimensions of human development namely, health, life expectancy at birth and education. The adolescent fertility rate has increased since 2010, reaching 34 births per 1,000 girls aged 15–19 in 2021 (World Bank, 2024). Early pregnancies often reduce women's future labour market participation, limiting their human development potential.

[86] UNDP Uzbekistan, 2024. "Empowering women in Uzbekistan to fight against corruption" [online]. https://www.undp.org/uzbekistan/news/empowering-women-uzbekistan-fight-against-corruption#:~:text=For%20the%20first%20time%2C%20the,the%20field%20of%20gender%20equality.

[87] International Labour Organization, 2020. "Women and the World of Work in Uzbekistan: Towards Gender Equality and Decent Work for All". Available at: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@europe/@ro-geneva/@sro-moscow/documents/publication/wcms_907344.pdf

**Table 15-13 Gender Equality Indicators Benchmarking[88]**

| Index | Uzbekistan Score | Europe and Central Asia | Global |
|---|---|---|---|
| Gender Development Index (UNDP 2022) | 0.94 | 0.96 | 0.96 |
| Gender Inequality Index (UNDP 2022) | 0.23 | 0.25 | 0.47 |
| Women, Business, and the Law (World Bank 2023) | 70.6 | 84.1 | 76.5 |

### 15.4.12.1 Study Area

Female FGD participants reported that women bear the primary responsibility for domestic work, childcare, and caring for incapacitated family members, while men are considered breadwinners and decision-makers in institutional engagements. Community members added that access to employment opportunities also varies by gender as able-bodied men are more likely to migrate to Korea or Russia for work, whereas women remain in the mahalla and rely on low-paid, informal, or piecework employment.

Women noted that their representation in formal community structures is limited; however, they remain engaged as members of vulnerable households and, in certain cases, actively liaise with social workers.

Over time, women's roles have expanded to include income-generation through informal home-based work, piecework in textile factories, and small-scale agricultural activities. Daily life involves balancing care duties with economic activities to sustain their households.

Participants added that although men and women have equal formal access to education, women and girls from low-income or vulnerable families face greater constraints. Children from poorer households or with illnesses often miss preschool due to fees and related costs, and adolescent girls are more affected by inadequate school sanitation and safety concerns. While family and community attitudes largely support girls' and women's education, structural barriers, including financial limitations, caregiving duties, and health challenge, restrict women's participation in education and training. Women perceive education as a critical route to improved employment opportunities and a means to break the cycle of intergenerational poverty.

The figure below presents surveyed households' perceptions on gender equality in their communities and workplaces. A vast majority (98%) of surveyed households believe that gender equality exists in their communities and workplaces.

[88] The World Bank, 2024. "Country Gender Assessment for Uzbekistan". Available in: https://www.worldbank.org/en/country/uzbekistan/publication/country-gender-assessment-2024.

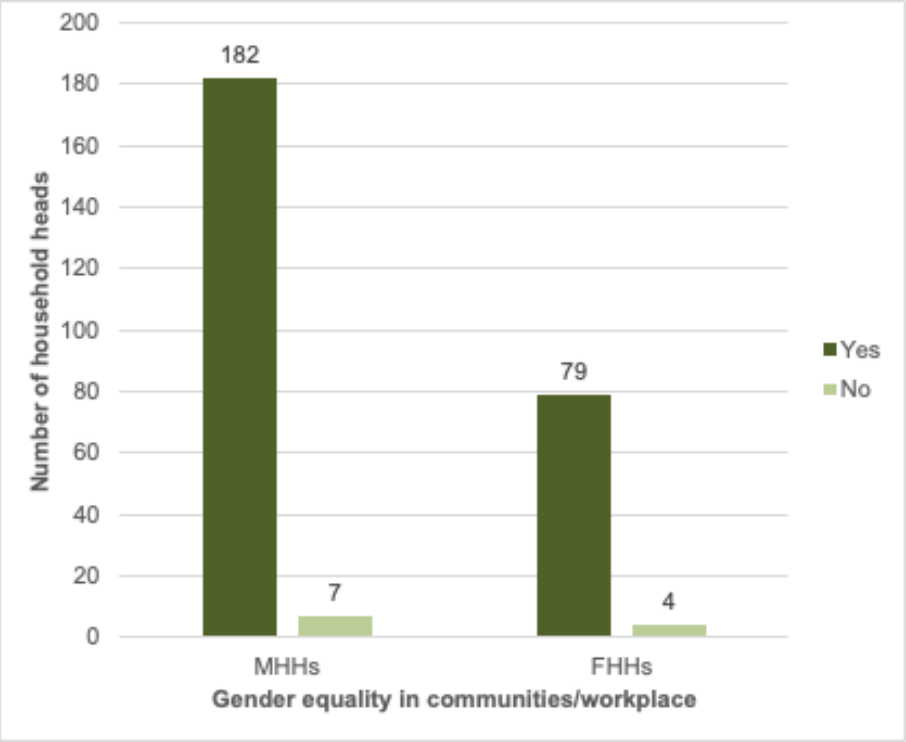



**Figure 15-17 Perception of Gender Equality in the Community and/or Workplace, Disaggregated by Gender 2026**

Approximately 52% of surveyed household heads reported that women are primarily responsible for cooking, cleaning, and laundry. Similarly, 53% indicated that women bear primary responsibility for childcare. The majority (67%) of surveyed household heads reported that male household heads are primarily responsible for financial decision-making. In comparison, 8% indicated that the spouse holds this responsibility, while 19% reported that financial decisions are made jointly between the household head and their spouse.

The figure below illustrates women's primary responsibilities in agricultural and livestock activities. The largest proportion (22%) are involved in crop cultivation and harvesting, followed by land preparation and maintenance (17%), milking or collecting animal products (15%), and livestock feeding or care (13%). Only 4% of women reported involvement in the sale of agricultural or livestock products.

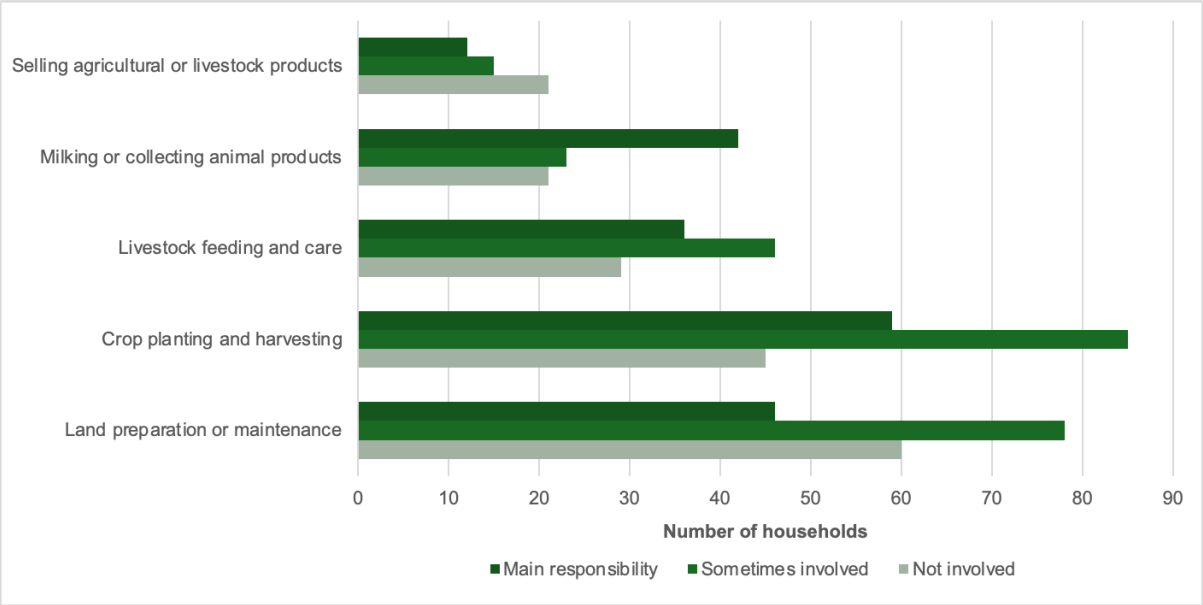



**Figure 15-18 Role of women in agriculture and livestock activities, 2026**

Household survey findings indicate that 28% of women own assets, while 72% do not. Among women who reported asset ownership, the majority own land (82%), followed by other assets (13%), savings (4%), and livestock (1%).

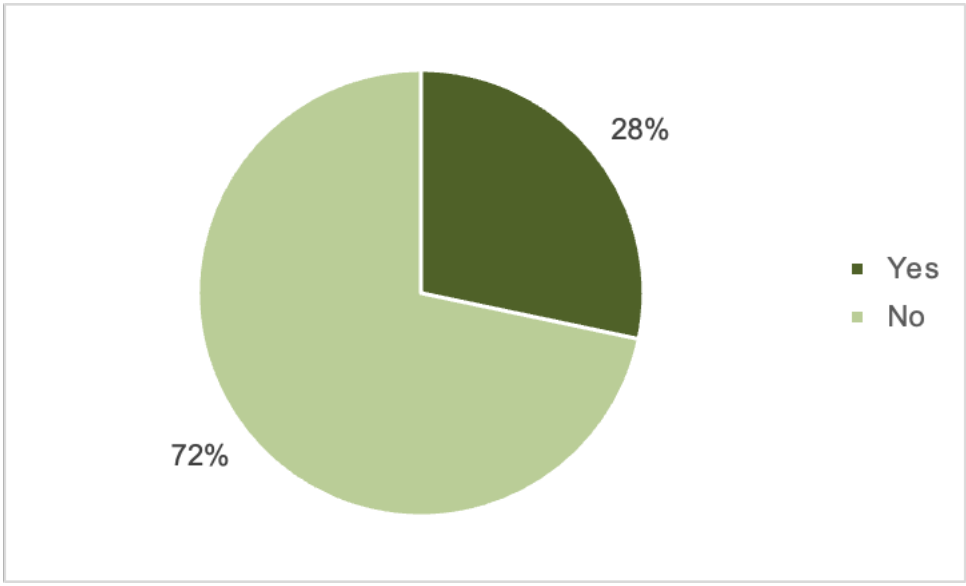



**Figure 15-19 Women's asset ownership, 2026**

### 15.4.13 Anticipated Project Impacts

The anticipated positive and adverse impacts on local communities were gathered during the public meetings, FGDs, and household surveys.

#### 15.4.13.1 Expected Benefits / Opportunities

- Creation of employment opportunities during both construction and operation, potentially reducing labour migration among the working-age population.
- Training for local unemployed individuals to ensure they can access project-related employment opportunities.

- Benefits to local businesses, including food and catering services.
- Contribution to community development, including the improvement and restoration of existing roads.

#### 15.4.13.2 Concerns / Risks

- Potential demolition or relocation of graveyards, which could undermine cultural continuity and cause emotional distress.
- Unequal distribution of project benefits, which may exacerbate existing economic inequalities.
- Road and traffic impacts on community health and safety, particularly due to the absence of traffic lights and cameras.
- Potential impacts on groundwater quantity and quality, disproportionately affecting vulnerable households unable to afford increased water costs.
- Indirect impacts during construction, including noise and deterioration of already poor roads, affecting vulnerable groups such as low-income families and people living with disabilities.
- Potential disruptions to the community's usual way of life.
- Increased risk of petty crimes, including theft, drug trafficking, and sexual harassment, particularly associated with migrant workers.

## 15.5 Area of Influence and Receptors

### 15.5.1 Area of Influence

The Socio-Economic Area of Influence (AoI) has been defined to capture the potential direct, indirect, and cumulative social impacts associated with the construction and operation of the Project and its associated facilities. The AoI encompasses communities, households, vulnerable groups, and institutions that may experience Project-related effects.To reflect the varying spatial extent of potential impacts, the socio-economic AoI has been delineated into two zones:

**Core Socio-Economic AoI**
The core socio-economic AoI comprises the area within a 5 km radius of the Project boundary and includes communities most likely to experience direct Project-related impacts due to their proximity to construction and operational activities. The core AoI has been identified based on:

- Locations of potentially affected households and communities.
- Potential impacts on local infrastructure, services, and resources (e.g., water, land, and transport).
- Proximity to Project construction and operational activities.
- Within the core AoI, 11 makhallas have been identified as key receptor communities due to their spatial and socio-economic relevance to the Project: Aranshi, Yongichkoli, Kim Pen Khva, Tarakkiyot, Khalkobod, Yangiyul, Dustlik, Surum, Kushek, Sergeli, and Beruniy.

### Wider Socio-Economic AoI

Recognising that certain Project-related impacts may extend beyond the immediate vicinity of the Project site, a wider socio-economic AoI has also been defined to encompass the broader regional context, including Urta-Chirchik and Kuyi-Chirchik districts. This wider AoI captures indirect and cumulative impacts associated with labour influx, employment opportunities, supply chains, traffic and road safety along transport routes, demand on public services, and other Project-related activities that may affect communities beyond the core AoI.

The AoI has been established to ensure that all key social impact pathways remain appropriately captured and assessed, including those linked to regional connectivity, logistics routes, and associated socio-economic interactions. The assessment will ensure alignment between these spatial definitions so that no Project-related impacts are excluded from consideration.

Socio-economic receptors within both the core and wider AoI include individuals, households, community groups, businesses, and local institutions that may experience positive or adverse effects as a result of the Project. Receptors are characterized based on demographic, economic, and vulnerability criteria using primary and secondary baseline data collected for the assessment.

## 15.5.2 Receptors

Receptors are the people, groups, or assets within the Project's Area of Influence (AoI) that may be affected by Project activities. Receptor sensitivity is determined by their dependence on local resources and services, socio-economic characteristics, and ability to cope with changes. Both direct and indirect receptors are considered to capture potential social and economic impacts.

**Table 15-14 E&S impact receptors – Socio-Economic Baseline**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Households (General) | **Medium** | Households may experience changes in livelihoods, access to resources, or social services due to Project activities. Sensitivity is moderate as most have coping mechanisms, but disruption can affect wellbeing. |
| Vulnerable Households (Female-headed, Elderly, Low-income) | **High** | These households have limited financial and social capacity to absorb adverse impacts. Any increase in costs, loss of access to land or services, or disruption in livelihoods disproportionately affects them. |
| Women | **Medium to High** | Women have limited access to formal employment and decision-making, making them more sensitive to changes in community resources, employment opportunities, and safety. |
| Children and Youth | **Medium** | Dependent on adults for livelihoods and access to education and health services. Sensitivity arises from disruptions in schooling, community safety, or household income. |
| Local Economy & Livelihoods (Agriculture, Informal Work, Seasonal Labor) | **Medium to High** | Changes in land use, access to resources, or employment opportunities can significantly affect income generation. Small-scale farmers and informal workers are particularly vulnerable. |
| Community Infrastructure & Services (Schools, | **Medium** | Disruption or increased demand on infrastructure due to Project activities can reduce service quality, |

| Receptor | Sensitivity | Justification |
|---|---|---|
| Clinics, Roads, Water Supply) | | particularly affecting households reliant on public services. |
| Local Institutions & Organizations (Makhalla Committees, NGOs, CBOs) | **Medium** | These institutions facilitate social cohesion and service delivery; impacts may include increased workload or challenges in responding to community needs. |
| Land & Resource Access (Dehkan plots, irrigation, water) | **High** | Dependence on land and natural resources for livelihoods makes these receptors highly sensitive to loss or restriction of access, contamination, or changes in water availability. |

## 15.6 Potential Impacts, Mitigation, Management & Residual Impacts

### 15.6.1 Construction Phase

#### 15.6.1.1 Impacts on Livelihoods and Income Sources

Construction activities may result in temporary disruptions to local livelihoods, particularly for households dependent on agriculture, livestock rearing, and informal employment. Potential impacts include restricted access to dehkan plots, irrigation channels as well as reduced agricultural productivity due to dust deposition, noise, and increased traffic. Informal workers and small vendors operating near construction areas or transport routes may also experience temporary income losses. Given the baseline conditions, such impacts are likely to disproportionately affect vulnerable households, including pensioners and female-headed households with limited alternative income sources and coping capacity.

Mitigation measures will focus on minimising livelihood disruption through careful planning and communication by development of the Livelihood Restoration Plan (LRP). Construction footprints will be clearly demarcated to avoid unnecessary access restrictions, and temporary access to agricultural land and water infrastructure will be maintained wherever possible. Construction activities will be scheduled to avoid peak agricultural periods to the extent practicable. Where temporary or permanent economic displacement cannot be avoided, appropriate compensation and livelihood restoration measures will be implemented in accordance with national legislation and the principles of lender's requirement, ensuring affected households are not worse off as a result of the Project.

#### 15.6.1.2 Land Access, Temporary Land Take, and Asset Disturbance

The construction phase may require temporary land occupation for access roads, construction camps, laydown areas, and utility diversions. This may result in temporary loss of access to land, damage to crops, fencing, or small-scale infrastructure, and uncertainty among land users, particularly where land tenure arrangements are informal or customary. Such impacts can generate anxiety and mistrust if not managed transparently and fairly.

To mitigate these impacts, the Project will undertake pre-construction surveys to document existing land use and assets prior to commencement of works. Any temporary land take or damage to assets will be compensated at replacement value, and land will be reinstated to its original condition or better following completion of construction activities. Clear procedures will be established for land access and compensation, supported by a grievance redress mechanism to allow affected households to raise concerns and seek resolution without fear of reprisal.

#### 15.6.1.3 Community Health and Safety

Construction activities have the potential to increase health and safety risks for local communities, particularly through increased traffic, heavy vehicle movements, noise, dust emissions, and the presence of open excavations. These risks are of particular concern for children, elderly persons, and people living with disabilities. Increased vehicle movements on already poor internal roads may elevate the risk of traffic accidents, while labour influx may increase exposure to communicable diseases.

The Project will implement a Community Health and Safety Management and will include traffic management measures such as speed limits, signage, and traffic marshals near settlements and sensitive receptors, as well as restrictions on construction traffic during school peak hours. Dust suppression and noise control measures will be applied, and construction sites will be fenced and clearly signposted. Community awareness sessions will be conducted to inform residents of construction risks and safety measures, with particular attention given to protecting children and vulnerable groups.

#### 15.6.1.4 Impacts on Water Resources and Household Water Access

Construction activities may affect groundwater and surface water resources through abstraction for construction use, accidental spills, or sediment runoff. Given the high reliance of households on groundwater accessed through pumping units, any reduction in water availability or deterioration in water quality could have significant implications for domestic use, agriculture, and livestock rearing. Vulnerable households may be disproportionately affected due to limited financial capacity to purchase alternative water sources.

To manage these risks, a Water Management Plan will be implemented during construction, including controls on water abstraction, monitoring of groundwater quality, and strict procedures for the storage and handling of fuels and hazardous materials. Accidental spills will be managed through emergency response procedures, and uncontrolled discharge of wastewater will be prohibited. Where construction activities temporarily affect household water access, alternative water supply arrangements or compensation will be provided to ensure continued access to safe and reliable water.

#### 15.6.1.5 Impacts on Community Infrastructure and Services

The movement of heavy machinery, oversized equipment, and construction vehicles is likely to accelerate the deterioration of existing internal roads, many of which may already be in poor condition and not designed to accommodate sustained heavy loads. Increased traffic volumes may result in surface damage, potholes, dust generation, and reduced road safety, particularly along narrow village roads and informal access tracks used daily by residents. This deterioration may place additional strain on local infrastructure and services, including public transport systems and access routes to health facilities, schools, markets, and places of employment. Temporary road closures, diversions, or congestion associated with construction activities may further disrupt daily mobility patterns, disproportionately affecting vulnerable groups such as elderly persons, children, people with disabilities, and households reliant on walking or public transport. Delays in accessing health services or emergency care could also occur if construction traffic is not adequately managed, potentially increasing community health and safety risks and contributing to inconvenience and frustration among local residents.

To address these impacts, baseline surveys will be undertaken prior to the commencement of construction to document existing road conditions and identify sensitive access routes and critical service corridors. A comprehensive Traffic and Transport Management Plan will be implemented in accordance with applicable requirements, including the WBG General EHS Guidelines (2007). In addition to traffic control measures such as defined haulage routes, speed restrictions, signage, and the use of traffic marshals near settlements and high-risk

locations, the Plan will incorporate occupational and operational safety provisions for drivers and vehicles. These will include verification of valid driver licensing and competencies prior to deployment, enforcement of fatigue management protocols throughout trip durations (including limits on driving hours and mandatory rest periods), and routine inspection and preventive maintenance of all construction vehicles to ensure roadworthiness and reduce the risk of breakdowns or accidents.

Construction scheduling will be coordinated with local authorities and service providers to minimise disruption during peak hours and to avoid interference with emergency services, school transport, and public transport operations. Emergency access routes will be maintained at all times, and temporary diversions will be clearly communicated to affected communities in advance. Any damage to roads or related infrastructure attributable to Project activities will be repaired promptly and in coordination with relevant authorities, with the objective of restoring affected infrastructure to pre-construction condition or better. Where feasible, the Project will contribute to longer-term improvements or rehabilitation of roads used during construction, thereby enhancing local connectivity and providing a residual benefit to surrounding communities beyond the construction phase.

#### 15.6.1.6 Social Cohesion, Cultural Sensitivity, and Community Wellbeing

Construction activities have the potential to disrupt social cohesion and community wellbeing by altering established daily routines, social interactions, and patterns of land and resource use. Increased noise, dust, traffic movements, and the presence of a non-local workforce may generate stress and inconvenience for residents, particularly in close-knit communities where social stability is closely linked to predictability and shared norms. Perceived inequities in the distribution of Project benefits, such as employment opportunities or compensation, may further exacerbate tensions within and between communities, especially where expectations are not clearly managed or where vulnerable groups feel excluded from decision-making processes. In addition, construction works carried out in proximity to culturally sensitive or spiritually significant sites, including graveyards, shrines, or other heritage features, may cause emotional distress, fear of loss of cultural identity, and opposition to the Project if communities perceive that their values and traditions are not being respected.

To mitigate these potential impacts, the Project will adopt a precautionary and culturally sensitive approach throughout the construction phase. All known culturally sensitive sites will be identified during pre-construction surveys and avoided wherever technically feasible. Where avoidance is not possible, early and meaningful consultations will be undertaken with affected communities, local leaders, and relevant authorities to agree on culturally appropriate mitigation measures, access restrictions, or ceremonial practices, as required. A Chance Find Procedure will be implemented to ensure that any unexpected discoveries of cultural heritage during construction are managed appropriately, including the immediate suspension of works in the affected area and consultation with competent authorities and community representatives before activities resume. Continuous stakeholder engagement and transparent communication will be maintained to keep communities informed of construction schedules, potential disturbances, and mitigation measures, thereby helping to manage expectations and reduce uncertainty. A culturally appropriate community grievance redress mechanism will be operational throughout the construction period, providing a trusted and accessible channel for individuals and groups to raise concerns, seek clarification, and obtain timely resolution, thereby supporting social cohesion and maintaining trust between the Project and local communities.

**Table 15-15 Socio Economics: Impact Significance, Mitigation & Management Measures and Residual Impacts – Construction**

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Impacts on Livelihoods and Income Sources | Moderate | Local households, farmers | High | Major | • Prioritise local employment during construction, with transparent and inclusive recruitment processes.<br>• Schedule construction activities to avoid peak agricultural seasons where practicable.<br>• Clearly demarcate work areas to minimise disruption to farming and grazing activities.<br>• Maintain access to agricultural land, irrigation channels, and livelihood resources wherever feasible.<br>• Implement compensation and livelihood restoration measures for temporary or permanent economic displacement in accordance with applicable standards.<br>• Provide timely information to affected households regarding construction schedules and potential disruptions.<br>• Establish and operate a grievance redress mechanism to address livelihood-related concerns promptly. | Moderate |
| Land Access, Temporary Land Take, and Asset Disturbance | Moderate | Landowners, land users, tenants | High | Major | • Prepare RAP to document land use, crops, and assets prior to works.<br>• Minimise the footprint and duration of temporary land take through careful construction planning.<br>• Clearly communicate land access requirements and duration to affected land users in advance.<br>• Compensate for temporary land take and asset damage at replacement value.<br>• Reinstate affected land to pre-construction condition or better following completion of works.<br>• Monitor contractor compliance with land access and reinstatement commitments.<br>• Maintain an accessible grievance mechanism for land-related issues. | Moderate |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Community Health and Safety | Moderate | Local communities, road users, vulnerable groups | High | Moderate | • Implement a Community Health and Safety Management Plan throughout construction.<br>• Prepare and enforce a Traffic Management Plan, including speed limits, signage, and traffic marshals near settlements and sensitive receptors.<br>• Restrict construction traffic during peak community activity periods, including school hours, where feasible.<br>• Apply dust suppression and noise control measures, particularly near residential areas.<br>• Secure construction sites with fencing, barriers, and warning signage.<br>• Conduct community awareness sessions on construction-related risks and safety measures.<br>• Implement labour influx management measures, including worker codes of conduct and induction training. | Low |
| Impacts on Water Resources and Household Water Access | Moderate | Water-dependent households, farmers | High | Moderate | • Implement a Water Management Plan governing abstraction, use, and discharge of water.<br>• Limit groundwater abstraction to sustainable levels and monitor water use regularly.<br>• Monitor groundwater quality and surface water conditions in areas potentially affected by construction.<br>• Store fuels and hazardous materials in designated, bunded areas to prevent contamination.<br>• Establish spill prevention and emergency response procedures and train workers accordingly.<br>• Prohibit uncontrolled discharge of wastewater or construction effluent.<br>• Provide alternative water supply arrangements or compensation if household water access is temporarily affected. | Low |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Impacts on Community Infrastructure and Services | Moderate | Local residents, service users | Medium | Moderate | • Record baseline conditions of roads and other infrastructure prior to construction.<br>• Limit use of community roads to designated routes where possible.<br>• Repair or rehabilitate any infrastructure damage attributable to Project activities.<br>• Coordinate construction schedules to minimise disruption to essential services and community access.<br>• Maintain emergency access routes at all times.<br>• Liaise regularly with local authorities regarding infrastructure use and maintenance. | Low |
| Social Cohesion, Cultural Sensitivity, and Community Wellbeing | Moderate | Local communities, cultural and religious groups | High | Moderate | • Identify culturally sensitive sites during pre-construction surveys and avoid them wherever feasible.<br>• Engage in early and meaningful consultation with communities, local leaders, and authorities where avoidance is not possible.<br>• Implement culturally appropriate mitigation measures agreed with affected communities.<br>• Apply a Chance Find Procedure for unexpected discoveries of cultural heritage, including immediate cessation of works and notification of relevant authorities.<br>• Maintain continuous stakeholder engagement and transparent communication throughout construction.<br>• Clearly communicate Project benefits, employment opportunities, and compensation processes to manage expectations.<br>• Operate a culturally appropriate community grievance redress mechanism and track resolution of concerns. | Low |

### 15.6.2 Operational Phase

#### 15.6.2.1 Employment, Livelihoods, and Local Economic Effects

During the operation phase, the Project is expected to generate longer-term employment opportunities, including skilled and semi-skilled positions in operations, maintenance, security, and administration. These opportunities may contribute positively to household incomes, reduce reliance on seasonal labour migration, and stimulate local economic activity through demand for goods and services such as catering, transport, and maintenance. However, there is a risk that employment benefits may not be equitably distributed, particularly if local residents lack the technical skills required for operational roles. Female-headed households, older workers, and individuals engaged primarily in agricultural livelihoods may face barriers to accessing stable Project-related employment.

To enhance positive impacts and reduce inequality, the Project will prioritise local hiring where feasible, supported by transparent recruitment procedures and targeted skills development programmes. Capacity-building initiatives, including on-the-job training and refresher courses, will be implemented to improve access for local residents, women, and youth. Contractors will be required to adhere to fair labour practices, ensure equal opportunity, and monitor workforce composition to identify and address disparities. Ongoing engagement with local authorities and makhalla committees will help align employment strategies with community needs and labour market conditions.

#### 15.6.2.2 Land Use, Water Resources, and Livelihood Security

Operational activities may place sustained pressure on land and water resources through continued land occupation, water abstraction, and potential risks of groundwater contamination. Given the high reliance of local households on dehkan plots, irrigation water, and groundwater pumping units, any reduction in water availability or deterioration in water quality could adversely affect agricultural production, livestock rearing, and household water security. These impacts would be particularly significant for vulnerable households with limited financial capacity to purchase alternative water supplies.

Mitigation measures will focus on responsible resource management and impact prevention. The Project will implement water efficiency measures, monitor groundwater levels and quality throughout operations, and ensure compliance with national standards and lender requirements.

#### 15.6.2.3 Community Health, Safety, and Wellbeing

Operational traffic, workforce presence, and increased economic activity may introduce risks to community health and safety, including road accidents, noise, air emissions, and increased pressure on local services. Communities within the Area of Influence, particularly children, elderly persons, and people with disabilities, may be more exposed to these risks due to proximity to access roads and reliance on walking as a primary mode of transport. Additionally, the presence of an external workforce could increase concerns related to community safety, including petty crime or social tensions.

To manage these risks, the Project will implement a Community Health and Safety Management Plan addressing traffic safety, road maintenance, speed control, and workforce conduct. Measures will include traffic management procedures, driver training, community awareness campaigns, and coordination with local authorities. A Code of Conduct for workers will be enforced, covering respectful behaviour, prohibition of harassment, and zero tolerance for gender-based violence. Monitoring of health and safety indicators will be undertaken throughout operations, and grievance mechanisms will remain accessible to allow community members to raise concerns and seek timely resolution.

#### 15.6.2.4 Gender and Vulnerable Groups

Operational impacts may affect women and vulnerable groups differently due to existing gender roles, employment patterns, and caregiving responsibilities. While the Project may provide income opportunities, women may continue to face barriers to formal employment and decision-making, limiting their ability to benefit fully from Project activities. Vulnerable households, including female-headed households, elderly persons living alone, and low-income families, may be disproportionately affected by increases in living costs, resource competition, or changes in access to services.

To promote social inclusion, the Project will integrate gender-sensitive and vulnerability-responsive measures into its operational management. This includes promoting women's participation in employment and training programmes, ensuring safe and accessible workplaces, and coordinating with local social protection institutions to support vulnerable households. Stakeholder engagement activities will include targeted consultations with women and vulnerable groups to ensure their perspectives inform operational decisions.

#### 15.6.2.5 Community Infrastructure, Services, and Social Cohesion

During operations, the Project may place additional demand on local infrastructure and services, including roads, water supply, waste management, and health facilities. While some infrastructure improvements may benefit communities, increased usage could lead to wear and reduced service quality if not adequately managed. Changes in community dynamics and perceptions of benefit sharing may also affect social cohesion if expectations are not managed transparently.

The Project will coordinate with local authorities to manage infrastructure use and support maintenance where Project activities contribute to increased demand. Opportunities for community development initiatives will be explored, focusing on priority needs identified through ongoing engagement. Transparent communication regarding Project benefits, limitations, and grievance procedures will be maintained to manage expectations and strengthen trust. Regular monitoring of community feedback will help identify emerging issues and inform adaptive management throughout the operational phase.

**Table 15-16 Socio Economics: Impact Significance, Mitigation & Management Measures and Residual Impacts – Operation**

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Employment, Livelihoods, and Local Economic Effects | Medium (beneficial) | Local household, job seekers, women, youth | Medium | Moderate (beneficial) | • Prioritise local hiring during operations where feasible.<br>• Implement transparent recruitment procedures and communicate job requirements clearly through makhalla committees.<br>• Provide on-the-job training and skills development programmes, with targeted measures to include women and youth.<br>• Require contractors to comply with fair labour practices, equal opportunity principles, and national labour legislation.<br>• Monitor workforce composition to identify and address gender or vulnerability-related disparities. | Low |
| Land Use, Water Resources, and Livelihood Security | Medium | Small-scale farmers, vulnerable households reliant on groundwater | High | Moderate | • Implement water efficiency measures and minimise abstraction during operations.<br>• Establish and implement a Water Management Plan, including regular groundwater level and quality monitoring.<br>• Ensure compliance with national water quality standards and lender requirements.<br>• Avoid contamination through proper waste and effluent management systems.<br>• In the event of Project-related impacts on water access or quality, implement corrective actions and livelihood restoration measures, prioritising vulnerable households. | Low |
| Community Health, Safety, and Wellbeing | Medium | Local communities; children, elderly, persons with disabilities | Medium | Moderate | • Implement a Community Health and Safety Management Plan covering traffic safety, road maintenance, noise, and emissions control.<br>• Apply traffic management measures, including speed limits, driver training, and signage. | Low |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Enforce a Worker Code of Conduct addressing respectful behaviour, prohibition of harassment, and zero tolerance for gender-based violence.<br>• Conduct community awareness programmes on road safety and grievance mechanisms.<br>• Maintain an accessible grievance redress mechanism and monitor incidents throughout operations. | |
| Gender and Vulnerable Groups | Medium | Women, female-headed households, elderly, low-income households | High | Moderate | • Integrate gender-sensitive and vulnerability-responsive measures into operational management plans.<br>• Promote women's participation in employment and training opportunities.<br>• Ensure safe, accessible, and non-discriminatory working conditions.<br>• Coordinate with local social protection institutions to support vulnerable households.<br>• Undertake targeted stakeholder engagement with women and vulnerable groups and incorporate feedback into operational decision-making. | Low |
| Community Infrastructure, Services, and Social Cohesion | Medium | Local communities, local authorities | Medium | Moderate | • Coordinate with local authorities to manage increased demand on roads, water supply, and waste management services.<br>• Support maintenance of infrastructure where Project activities contribute to increased use.<br>• Explore community development initiatives aligned with locally identified priorities.<br>• Maintain transparent communication on Project benefits, limitations, and grievance processes to manage expectations.<br>• Monitor community feedback and adapt management measures as required. | Low |

## 15.7 Monitoring

Monitoring of land acquisition activity will be undertaken as required via the management measures outlined above. The following table outlines key indicators.

**Table 15-17 Socio Economics: Key Monitoring indicators- Construction and Operation**

| Monitoring | Parameter | Project Phase | Frequency & Durations |
|---|---|---|---|
| Land use change | Project Affected People | Based on construction & operational phase impacts | As per the RAP |
| Local procurement | % of project goods/services sourced from local suppliers | Construction | Quarterly based on the procurement records, vendor list |
| Local Employment | Number of persons employed from the communities near the Project site (gender disaggregated)<br>Number of skilled/unskilled local Workers | Construction and Operational | Ongoing based on HR database |
| Community Health and Safety Incidents | Traffic accidents, incidents related to workforce-community interaction, complaints/grievances received, effectiveness of mitigation measures | Construction & Operation | Monthly incident reporting, continuous monitoring through grievance mechanism, annual summary report |
| Social Cohesion and Community Feedback | Number of grievances related to cultural, social, or economic impacts<br>Stakeholder engagement activities conducted<br>Community perception surveys | Construction & Operation | Monthly reporting on grievances and engagement.<br>Annual perception survey to identify trends |
| Gender and Vulnerable Groups Participation | Participation of women, youth, and vulnerable groups in training, employment, and community programs | Construction & Operation | Monthly reporting.<br>Quarterly analysis.<br>Annual review to assess inclusion effectiveness |
| Third Party Grievances | Number of the grievances received, response period, close-outs | Construction and Operational | Ongoing |

# 16.0 Land Acquisition

## 16.1 Applicable Requirements & Standards

### 16.1.1 National Regulations

The following sections outlines all national regulations pertaining to land tenure and expropriation.

#### 16.1.1.1 The Constitution of the Republic of Uzbekistan (adopted in 1992, and as amended in 2023)

The Constitution of Uzbekistan establishes the universal right to property ownership in Article 41. Article 47 states that everyone shall have the right to housing, adding “In the cases and in the manner prescribed by law, the owner, deprived of his or her home, shall be provided with preliminary and equivalent compensation for the cost of housing and the losses incurred by him or her”.

#### 16.1.1.2 The Housing Code of the Republic of Uzbekistan (adopted in 1998, and as amended in 2024)

The Housing Code of the Republic of Uzbekistan regulates relations of citizens, legal entities, public bodies and local governments on the emergence, implementation, change and termination of property rights, the right of possession and use of premises, the registration of housing, the maintenance and repair of housing stock, the monitoring of observance of housing rights of citizens, and the proper use of housing stock.

- Article 27 states that if residential houses, including apartments, owned by citizens are demolished due to the withdrawal of land plots for state or public needs, the owners must be provided with the choice of alternative housing of equal value as property. The alternative housing must have all amenities and a living space not less than the social norm. Additionally, compensation for the market value of trees and plants must be paid. Alternatively, the market value of the demolished house (or apartment), other buildings, structures, and trees, as well as the market value of the right to the land plot, must be paid in full.
- Article 28 of the Code identifies conditions for “land for land” compensation for acquisition of residential lands for state and public needs. The article says that in case of demolition of residential houses in connection with land acquisition for state or public needs the affected citizens, members of their families and also the citizens which permanently live in these houses shall be provided land for individual housing construction based on the existing standards. The affected persons should be provided temporary housing for the period of new house construction on new land up to three years including full compensation of demolished premises, facilities, constructions and plantings as well as other related expenditures.
- Article 29 says that the legal entities who own residential houses, other constructions, facilities, and plantings located on land to be acquired shall be compensated with equal value property and paid other losses incurred due to acquisition of land parcel due to state and public needs.
- Article 30 states that residential houses and other facilities located on acquired land can be moved to a new location. The procedure of movement of houses, constructions and facilities shall be determined by the Cabinet of Ministers of Uzbekistan.

#### 16.1.1.3 The Land Code (1998 and as amended in 2025)

The Land Code provides the fundamental framework for the classification and administration of land in the Republic of Uzbekistan. It establishes the principles and requirements for the allocation, utilisation, and protection of land. The Code also defines legal forms of individual and collective land tenure, as well as various land categories subject to reservation and conditional reallocation.

**Provisions on Land Ownership**

- Article 16 provides that all land in the Republic of Uzbekistan is a national treasure which must be managed on a sustainable basis as it underpins the life, economy, and welfare of the population.
- Article 28 provides that payment is required for the acquisition of land plots and for the use of land. Legal entities and individuals that acquire land plots shall pay a fee in accordance with this Code based on the results of electronic online auctions or in the amount determined by an appraisal organisation, and shall also compensate for losses of agricultural and forestry production. Legal entities and individuals that possess, use, or own land plots shall pay for the use of land. Payment for land use is collected in the form of an annual land tax, the amount of which is determined depending on the quality of the land plot, its location, and the level of water supply.
- Article 33 specifies the two documents, which serve to demonstrate legal tenure of land parcels, namely (i) state certificate on the right to possess a land plot, (ii) land-use agreements.
- Articles 59 specifies land use categories for land resources in urban and rural jurisdictions, namely (i) land for urban building, (ii) land for common use, (iii) agricultural land use, (iv) forestry land use, (v) industrial, transport, communication and military land use, (vi) restricted land use (for wildlife, hazardous, cultural and recreational land), (vii) water supply land, and (viii) reserve lands.

**Provisions for Expropriation of Land**

- Article 37 states the withdrawal of land plots, or parts thereof, belonging to individuals and legal entities on the basis of inheritable lifetime ownership, permanent ownership, permanent use, fixed-term (temporary) use, or lease, for public needs with compensation, shall be carried out in accordance with the procedure established by law. The article further states that the purchase of a land plot that is the private property of individuals or legal entities for public needs shall be carried out in accordance with the procedure established by law. The purchase of a land plot owned by foreign individuals or legal entities, together with a trade or service facility, or a residential premises and another building or part of a building, for public needs, shall be carried out by the decision of the Councils of People's Deputies of the regions and the city of Tashkent, or by the decision of the Cabinet of Ministers of the Republic of Uzbekistan, with the provision of guarantees stipulated in Article 41 of this Code.
- Article 41 states "Interference into the activity of owners of land parcels, landowners, land users, lessees and owners of households of state, economic and other authorities and organisations is forbidden, with the exception of cases of infringement of legislation by the owners of land parcels, landowners, land users and lessees". The Article mandates compensation or whole refunds for loss of or damage to land assets and lost profits, due to infringement of land rights held by landowners, land-users, and land leasers.
    - Article 43 states "Transfer of lands of agricultural purpose into other categories of land for non-agricultural needs is allowed in exceptional cases in accordance with this law and other legislative acts".

**Provisions for Compensation**

- Article 86 provides that landowners, users, lessees, and proprietors must be fully compensated for any losses they incur, including lost profits, in cases of land expropriation, purchase, or temporary occupation. Compensation is also required when their rights are restricted due to the establishment of protected zones such as water protection areas, coastal strips, sanitary zones, and others, or when land quality deteriorates due to construction or harmful activities affecting agricultural productivity. Compensation for expropriation for public needs is covered by centralised compensation funds or responsible entities, following procedures established by law.
- Article 91 states that land occupied without permission shall be returned without refund of the expenses incurred during the time of illegal possession and use. Additionally, the cost of demolishing any buildings will be borne by the persons who occupied the land.

#### 16.1.1.4 Civil Code (1990, as amended in 2025)

The Civil Code (i) defines the legal status of participants in civil relations, (ii) sets out the basis and procedures for implementing the right to property, and (iii) regulates contractual obligations. It further establishes general rules for the withdrawal/ seizure of property, determination of the value of property, and the right to compensation, as well as conditions for deprivation of rights.
The code establishes that any person whose rights have been violated may demand full compensation for the losses caused, unless the law or the contract does not provide compensation for losses in a lower amount. Losses are understood to mean the expenses that the person whose rights have been violated, have produced or will have to produce in order to restore the violated right, the loss or damage to his/her property (real damage), as well as the income/revenue that the person would have received under normal conditions of civil activity if his/her rights had not been violated (lost profit).

- According to Article 14, if the person has violated the law, revenue received as a result of this will be lost, the person whose rights were violated, has the right to demand compensation along with other losses, lost profits in the amount less than such profits.
- Article 83 defines immovable property as plots of land, subsoil, buildings, constructions, perennial plantings, and other property firmly connected with the land i.e. objects whose displacement without disproportionate damage to their purpose is impossible.
- Article 84 provides that the right of ownership and other real property rights, creation, transfer, restriction, and termination of these rights are subject to state registration. This means that without registration the right to real estate property does not enter into force and cannot be compensated.

#### 16.1.1.5 Law of the Republic of Uzbekistan No 781 “on land acquisition for public needs with compensation” (2022, as amended in 2024)

The Law provides for the expropriation of privately held land for public needs. It specifies conditions and procedures for lawful land withdrawal and reallocation and sets out compensation entitlements for legally registered land rights holders.
Article 2 states that if an international agreement made by the Republic of Uzbekistan establishes rules other than those stipulated by Law No. 781, the rules of the international agreement shall apply.

**Provisions on Withdrawal of Land**

- Article 4 specifies ‘public need’ developments that warrant land withdrawal and reallocation. One amongst these is construction (reconstruction) of roads and railways

of republican and local significance, airports, airfields, air navigation facilities and aviation technical centres, railway transport facilities, bridges, subways, tunnels, engineering facilities and lines of the energy and communications system, space activities facilities, main pipelines, engineering, communication networks, irrigation, and melioration systems.

- Article 12 demands that Compensation Commissions ensure regular monitoring of the timely provision of compensation in full, and provide assistance in resolving pre-trial disputes with advisory decisions for disputes related to the provision of compensation.
- Article 13 requires the initiator of a project warranting land expropriation to identify the most suitable land parcel (with the least pre-existing priority assets), where technically feasible alternatives are available, and present substantiating documents to the resident Regional Khokimiyat.
- Article 14 provides that “The initiative for the implementation of the project and the withdrawal of land plots in this regard, and relevant substantiating materials, shall be considered by the Cabinet of Ministers of the Republic of Uzbekistan. Based on the results of consideration by the Cabinet of Ministers of the Republic of Uzbekistan, a resolution shall be adopted on the implementation of the relevant project.
- Article 14 further states “Where it becomes necessary to withdraw land plots in connection with the adoption by the Cabinet of Ministers of the Republic of Uzbekistan based on a resolution on the implementation of the project for public need, all obligations assigned by this Law shall be performed by the khokimiyat of the relevant region”.

### Provisions on Valuation of Compensation for Land Withdrawal

- Article 23 specifies compensation entitlements for legal landholders subjected to land expropriation. These include compensation (at market value) for immovable property on affected land plots, compensation for plots under lifetime/ inheritable ownership, compensation for perennial plantations, and conditional compensation for certain transitional expenses leading up to the restoration of affected property and livelihoods. Additionally, a one-time payment of 5% of the market value of immovable property located on a land plot shall be paid as compensation for the inconvenience caused to the right holder in connection with the withdrawal of the land plot.
- Articles 24 and 25 include several provisions to legalise both monetary and in-kind compensation for land, loss of income, immovable asset and any other impact occurred due to the land acquisition.
- Article 25 describes procedure and possible ways of compensation for physical displacement (resettling people in multi stored apartments and private houses).
- Article 25 further provides that “The amount of monetary funds specified as compensation in agreements, from the date of conclusion of which one month has expired at the time of the conclusion of an agreement with all right holders within three months, shall be paid subject to indexation in proportion to inflation officially announced by the State Committee of the Republic of Uzbekistan on statistics in the relevant months”.
- Article 26 then states that “In case of non-vacating the objects of immovable property located on the withdrawn land plot within six months after the provision of compensation in full, the initiator shall have the right to apply to the court with a claim for forced eviction”.

**Provisions on Valuation of Affected Property**

- Article 29 states “Assessment of objects of immovable property subject to demolition, including perennial plantings, as well as rights to a withdrawn land plot, shall be carried out before the start of the procedures for withdrawing the land plot or until the impact of the notice of withdrawal of the land plot on the value of the object of immovable property, as well as the rights to the withdrawn land plot.
- It adds “Assessment of the rights to the withdrawn land plot shall be carried out solely on the basis of documents confirming the state registration of rights to the land plot”.

**Provisions on Valuation of Affected Property**

The Law further provides for legal recourse for any grievances and objections arising out of land expropriation proceedings.

- Article 34 states “The Compensation Commissions shall preliminarily consider disputes related to the provision of compensation to the right holder in the pre-trial procedure”, adding “A party that does not agree with the decision of the Compensation Commission may apply to the court in accordance with the procedure established by legislative acts”.

#### 16.1.1.6 Presidential Decree No. PF-6243 (2021, as amended in 2024)

Changes in procedure of land allocation were made on June 8th, 2021 through the Presidential Decree “On measures to ensure equality and transparency in land relations, reliable protection of rights to land and their transformation into market assets”. Based on this PD, the authority of district governors to allocate land directly is abolished. It is also prohibited to seize, reserve, or transfer land with any document. This means, from August 1, 2021, some rights on land of local governors were restricted, and such restrictions will also affect the process of purchasing and leasing land. This is now forbidden for local governors to transfer land to citizens, businesses, organisations through immediate decision.

Instead, all types of land, including agricultural, commercial as well as for residential purposes will be allocated through an open electronic tender to winning bidder granting lease or ownership rights (depending on type of land and tender conditions).

The “E-AUCTION” is the platform that uses a software for online auctions, allowing participation via the internet and ensuring no interference during processing and the selection process of the winner. Initially, from September 1, 2017, it was used for property sales related to court documents. Due to its success, the platform was expanded to other sectors by government decisions.

The platform enables citizens to participate In fair and transparent auctions for a range of assets, including state properties, real estate, vehicles, land plots, mineral extraction rights, cleaning services, advertising installation rights, and more.

The aim is to ensure legality, transparency, and fairness in auctions, prevent price manipulation, and protect the integrity and confidentiality of information. The organisation of these auctions is managed by JSC “Organization of electronic online auctions” for individuals and legal entities. All land acquisition for private leasehold is managed through State Asset Management Agency via an online auction process. Locally these auctions are managed by regional/district departments of cadastral agencies.

The process of obtaining a Land Lease Agreement is as follows:

- UZSAMA posts notification on e-auction website indicating tender with details on the size, location, leasehold or freehold allocation, rent and/or initial prices of the plots.
- Candidates select and submit application suitable lot with type of land needed published at e-auction. Application must be submitted before the deadline indicted for selected lot/tender.

- Summitted applications are reviewed separately before auction take place. Selected candidates for auction process make pre-payment established for biding tender.
- Winning bidder is selected at auction process with a participation of selected candidates.
- Once auction is completed, winning bidder is awarded with certificate which will be a basis for issuing and signing LLA with relevant local municipalities (depending on location of land plot).
- Pre-payment done for tender is returned to all unsuccessful candidates.

These auctions are open to public bidders nationwide and are highly competitive, with land awarded based on the best price and performance on income-related criteria (e.g. agricultural performance and liabilities history). There is no fixed auction schedule, and land parcels of various sizes are auctioned as they become available, making it difficult to predict the availability and location of land. To participate, bidders must pay a bidding fee equivalent to 15% of the starting price, and depending on the leasehold type, the full cost of the land may need to be settled upfront.

#### 16.1.1.7 Law No 937 on Recognition of Rights to Illegally Occupied Land Plots and Buildings in Uzbekistan (2024)

This law provides a legal pathway for recognising rights to illegally seized land and the buildings on them, under strict conditions, mainly if the seizure happened before May 1, 2018, there are no disputes or tax debts, and the land wasn't previously allocated or auctioned. Lease rather than ownership is recognised for the land itself, but ownership rights apply to the buildings.

### 16.1.2 Cabinet of Ministers Resolution No. 146 (2022)

Resolution No. 146 establishes the procedures for the valuation of immovable property, land use rights, and associated assets in the context of land acquisition and compensation. It defines the methods for determining the market value of affected assets, including buildings, structures, land rights, and perennial crops (such as fruit trees), and sets out requirements for the timing and conduct of valuations. The Resolution also provides guidance on documenting valuation results and integrating them into the compensation process.

### 16.1.3 Lender Requirements

The Project is seeking financing from the IFC, EBRD, US DFC, JBIC, NEXI and KEXIM.
The IFC and EBRD have specific standards governing land acquisition, restrictions on land use, and involuntary resettlement. KEXIM, JBIC, NEXI and US DFC do not maintain dedicated standalone standards for land-related impacts but instead rely on internationally recognised frameworks, particularly the IFC Performance Standards.
Given this alignment, this ESIA and RAP aligns with IFC Performance Standard 5 (PS5) and EBRD Environmental and Social Requirement 5 (ESR5). IFC PS5 sets out obligations for avoiding or minimising displacement, providing compensation at full replacement cost, restoring livelihoods, preventing forced eviction, and engaging meaningfully with affected communities in cases of both permanent and temporary physical or economic displacement. EBRD ESR5 reflects these same principles and places particular emphasis on transparent disclosure, meaningful engagement with affected persons and the protection of vulnerable groups.

### 16.1.4 Gap Analysis

The table below outlines the differences between national laws and the Lenders' requirements and presents the measures included in this RAP to address those gaps.

**Table 16-1: Gap Analysis between the Uzbek and Lender Standards**

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| Resettlement planning | There is no requirement under national legislation to designate resettlement personnel, assign institutional responsibilities, or establish dedicated RAP implementation teams. The preparation of a RAP is not required. Budget provisions are partially addressed through compensation funds and payment mechanisms as established under Law No. 781 and Resolution No. 1047, but there is no requirement for a comprehensive resettlement budget covering all resettlement-related activities (e.g. assistance, monitoring, livelihood restoration). | Designate specific personnel, including resettlement expert(s) and management representative(s), with a clear allocation of responsibility and authority.<br>Develop a resettlement and land acquisition plan or framework is obligatory. The RAP will contain: (i) potential impacts; (ii) legal gap analysis, (iii) entitlement matrix, (iv) mitigation measures, (v) legal and institutional arrangements for implementing resettlement measures, (vi) resources and budget, (vii) channels and procedures for transfer of funds, (viii) timeline, (ix) monitoring and reporting requirements, and (ix) how the change process will be managed to address future changes.<br>Prepare a budget proportionate to the planning, mitigation, monitoring, evaluation and reporting activities, including: (i) stakeholder engagement, impact assessment, cash and in-kind compensation, livelihood restoration and livelihood improvement, relocation and resettlement, and other assistance and corrective actions; (ii) staffing and related operational costs; (iii) training and capacity-building measures; and (iv) progress monitoring, including internal and external evaluation and reporting of all resettlement-related activities. | This RAP has been developed in alignment with IFC and EBRD requirements. |

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| Displacement avoidance and minimisation | Law No. 781, Art. 4 says that land acquisition must be justified for public needs, and Art. 13 requires identifying the most suitable land parcel after the decision to implement a project is made. However, there is no requirement to assess alternatives or minimise displacement through social or environmental analysis. | Avoid involuntary resettlement or, when unavoidable, minimise involuntary resettlement by exploring technically and economically viable alternatives. Design options must be documented and justified through E&S assessments.<br>In the case of a forced eviction, it must be conducted in a manner consistent with basic principles of due process. Notify the lenders before any eviction takes place, which will include evidence of due process and compliance with national law and the provisions of ESR5/PS5. | The Project has conducted an alternatives assessment and selected the least impactful option |

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|---|---|---|---|
| Eligibility | National law recognises and compensates only those with formal, registered legal rights (Civil Code, Article 84; Law No. 781).<br>While there is limited recognition of certain unregistered or informal land use in specific cases, these do not provide entitlements equivalent to lender requirements, particularly for informal occupants and users without legal title. | Three categories of affected persons are considered:<br>- persons who have formal legal rights to the land or assets<br>- persons who do not have formal legal rights, but who have a claim to land or assets that is recognised or recognisable under national law<br>- persons who have no recognisable legal right or claim to the land or assets<br>These groups are all entitled to compensation for assets and assistance for resettlement and livelihood restoration. | The following measures are adopted in this RAP to ensure alignment with lender requirements:<br>• In accordance with national legislation, the RAP limits compensation for land exclusively to registered land, meaning that the 17 PAPs whose land is partly unregistered are only compensated for the registered portion. However, an exception is made for one PAP whose entire landholding is unregistered. To ensure that living standards are maintained and that the PAP will be able to rebuild or acquire a new house, this PAP will be compensated for a minimum viable residential plot (0.04 ha) in line with the Uzbek Land Code.<br>• Although national legislation does not provide for compensation of structures built without formal registration, the project has extended compensation to all owners of unregistered buildings, in order to align with lender safeguard expectations.<br>• Under national practice, leaseholders who have not declared agricultural income in one of the previous three years are gener- |

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| | | | ally not eligible for compensation for lost income. However, to meet lender requirements, the project has compensated these households based on their declared crop type, or field observations of crop residues, where crops were not visible during inventory due to seasonal conditions. |
| Census, asset inventory and socio-economic surveys | The national framework relies on registry-based identification of affected persons rather than field-based enumeration. While the law requires valuation of immovable property prior to land acquisition (Law No. 781, Article 29), this applies only to registered assets and rights. There is no requirement for a comprehensive census, asset inventory including informal assets, or socio-economic baseline surveys. | Carry out a census to identify persons affected (including seasonal, informal and temporary persons who may not be present at the time) and determine who will be eligible for compensation/assistance.<br>Carry out an inventory of affected assets and a detailed measurement survey, including land and physical assets attached to the land, sources of livelihood and sources of income, and other natural resource-based activities.<br>Assess the full range of rights held by PAPs and identify and support the resolution of any conflicting claims and disputes over affected lands, assets and livelihood resources. All management of data will comply with data privacy and consent requirements.<br>Carry out socioeconomic surveys to describe the baseline circumstances by combining quantitative and qualitative methods, and must be designed to facilitate further social and economic monitoring. | The Project has undertaken a census, asset inventory and socio-economic survey of all affected persons and households |

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| Cut-off date | National legislation does not define a formal cut-off date for determining compensation eligibility. | Establish a cut-off date for eligibility and inform affected persons of the cut-off date. Information on the cut-off date will be well documented and disseminated at regular intervals in written and non-written form (including posted warnings that persons settling after the cut-off date may be subject to removal). The client will declare a separate new cut-off date for any additional unanticipated or omitted resettlement risks and impacts not included or inaccurately assessed in a resettlement plan. | A cut-off date (26/01/2026) was established for the RAP. This date was publicly disclosed and communicated to communities and local authorities (see section |

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|---|---|---|---|
| Valuation and full replacement cost | The national framework provides for market-based valuation of affected assets in accordance with applicable valuation legislation, including the Law on Valuation Activity, Cabinet of Ministers Resolution No. 146, and national valuation standards. Compensation includes market value for structures, land use rights, perennial crops, and certain transitional costs, as well as a one-time payment of 5% of the asset value for inconvenience for all immovable assets located on expropriated land (Law No. 781, Article 23).<br>Compensation amounts are subject to inflation indexation if delayed (Law No. 781, Article 25), and agreements must be formalised through notarised contracts. Law No. 781 (Articles 24 and 25) also provides for both monetary and in-kind compensation, including resettlement options.<br>However, national valuation approaches do not explicitly require compensation at full replacement cost and may apply depreciation or insufficiently account for income loss (e.g. for perennial crops for which income losses are not counted). | Valuation will be at full replacement cost and will be performed by qualified valuers, with a well-documented valuation methodology. To ensure compensation at replacement cost, planned compensation rates may require updating in project areas where inflation is high or the period of time between calculation of compensation rates and delivery of compensation is extensive. Compensation will be transparent and applied consistently to all.<br>Where livelihoods are land-based, or where land is collectively owned, must offer land-based compensation, unless proven unfeasible or unacceptable to affected persons. Resettlement sites/properties will offer adequate housing, living conditions and access to services at least equivalent to those before. Additionally, will offer to purchase entire land in cases of possible orphan land.<br>Where the loss of community facilities, utilities or public amenities is involved, these must be replaced to ensure a better or similar level of service, based on consultation, to identify and agree upon suitable alternatives. | To ensure replacement cost, in addition to the eligibility extension provisions already mentioned above, the following measures have been adopted in this RAP:<br>• A choice between monetary compensation and in-kind support will be offered to all PAPs losing a land plot and housing.<br>• A 5% disturbance allowance is expected by national law for all immovable assets (trees, structures and housing) on land. This has been extended to the compensation for all assets, including land itself as well lost income and structures located on lease land.<br>• A moving allowance and resettlement assistance is provided to all physically displaced PAPs, in addition to compensation.<br>• All PAPs losing land or an agricultural lease will be supported in the identification, obtention and payment of new land titles and leases, including the payment of all associated fees and taxes.<br>• All agricultural leases will be replaced at cost by the Project, including the cost of the lease |

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| | | | itself as well as any fees and taxes associated with the participation in the e-auction process and the transaction.<br>• Compensation for the loss of agricultural land is provided for one year of lost income according to national legislation. To ensure replacement value, as finding an equivalent lease and reestablishing economic activities may take longer, the Project will extend the compensation to 4 years of lost income, assuming that it may take 2 years for the PAP to identify a suitable equivalent lease and 2 years to re-establish their economic activities on the farm.<br>• An additional allowance and other support measures are defined for vulnerable households to ensure that they are not disadvantaged.<br>• Transitional support for the loss of employment for all workers employed by the affected farms will be provided.<br>• Depreciation was removed from all valuations of property. All valuations of houses according to the national process (market value) were compared with an |

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| | | | additional evaluation of the re-placement cost and whichever value was higher was selected.<br>Thanks to these measures, compensation is provided at full replacement cost. Valuation methods and entitlements are detailed in the RAP. |
| Payment of compensation | National legislation requires that compensation be agreed and fully paid prior to land acquisition. This is established under Presidential Decree No. 5490, Law No. 781, and Resolution No. 1047, which also provides for the use of compensation funds to administer payments. However, there is no explicit requirement to ensure compensation is paid prior to restriction of access to land or resources. | Compensation will be provided before displacement or imposition of access restrictions on land or assets. Inform physically displaced people of the timing of the physical move with reasonable notice and after consultation, taking into consideration potential impacts on agricultural and schooling calendars, among other factors. The client will take possession of land and related assets only after compensation and, where applicable, physically displaced persons have been resettled with relevant assistance and entitlements provided. | Four months of notice to vacate the property will be provided. Payment of compensation will be prior to the impact (see section 7.2). |

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| Resettlement assistance | National legislation does not provide for structured resettlement assistance, support to vulnerable groups, or dedicated moving assistance. However, Law No. 781 (Articles 23–25) provides for transitional costs, which may include relocation expenses, temporary housing or rent, business interruption costs, and other temporary losses incurred during displacement. | Provide resettlement assistance suited to the needs of each group of affected persons, with particular attention to the needs of vulnerable people. All physically displaced persons will be provided with financial and logistical transition, moving and relocation assistance. | Resettlement assistance and a moving allowance provided. |
| Livelihood restoration | There is no requirement in national legislation for livelihood restoration beyond compensation for direct losses and lost profits. There are no provisions requiring restoration or improvement of livelihoods following displacement. | In addition to compensation for lost assets, economically displaced persons whose livelihoods or income levels are adversely affected will also be provided with opportunities to improve, or at least restore, their means of income-earning capacity, production levels, and standards of living. | Livelihood restoration measures included in the RAP |
| Vulnerable people | Uzbek land legislation contains no provisions for vulnerable people in the context of land acquisition and resettlement. | Identify, assess and address risks to and impacts on vulnerable people during planning and implementation - by analysing vulnerability factors during socioeconomic surveys, by conducting specific consultations with vulnerable people, and by planning assistance measures tailored to their different needs (and providing for their implementation and funding as part of the budget). | Vulnerability criteria are defined and vulnerable households are identified in the RAP.<br><br>Affected individuals and households categorised as vulnerable will receive additional support as outlined in section<br><br>Specific requirements for the meaningful engagement of vulnerable individuals are presented in the RAP. |

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| Gender | Uzbek land legislation contains no provisions for women, or any gender differentiations. | Measures will be put in place to ensure meaningful participation of all genders in any consultations about resettlement. Projects will seek to understand the differential impacts of land acquisition, restrictions on land use and involuntary resettlement on men and women. Compensation entitlement and delivery will take into account gender issues. Assistance with regard to livelihood improvements or restoration will be made equally available to men and women and adapted to their respective needs. | Specific support and inclusion measures for female PAPs are outlined in section 7.4.6. |
| Public consultation and disclosure | Law No. 781 requires that land acquisition and compensation decisions be discussed with affected parties and local authorities. However, there are no detailed provisions aligning with international standards on stakeholder engagement, including requirements for ongoing consultation, participation in decision-making, or disclosure of project information. | Meaningful consultation of affected persons and communities, including host communities, will be organised throughout the process of resettlement planning, implementation and monitoring. Ensure that all groups are informed and made aware of their entitlements, rights, opportunities and benefits. Support consultation and engagement efforts with simple, practical, accurate and culturally appropriate documentation meant for broad dissemination to those affected. | Specific requirements for the meaningful and continuous engagement of PAPs are outlined in the RAP. |

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| Grievance management | Law No. 781 (Article 12) requires Compensation Commissions to assist in the pre-trial resolution of compensation-related disputes and provide advisory decisions. However, there is no requirement for a project-level, accessible, and independent grievance redress mechanism. | Establish an effective GRM prior to the census, in order to address in a timely manner concerns about involuntary resettlement. The GRM will be socially appropriate and readily accessible to all. It will also include a recourse mechanism to resolve disputes in an impartial manner. It should not impede access to the national judicial system. The outcomes of the GRM will be reflected in monitoring reports. | A transparent and accessible GRM is outlined in the RAP. |

| TOPICS | UZBEK NATIONAL LEGISLATION | IFC AND EBRD REQUIREMENTS | MEASURES TO BRIDGE THE GAP |
|---|---|---|---|
| Monitoring and evaluation | Resolution No. 1047 and Law No. 781 (Article 12) require monitoring of compensation payments and administration of compensation funds. However, this monitoring is limited to financial and procedural aspects. There is no requirement to monitor resettlement outcomes, assess livelihood restoration, or conduct completion audits. | Establish procedures to monitor and evaluate the implementation of the RAP and to take corrective action if necessary. Monitoring will involve the participation of key stakeholders, and will consider their concerns and feedback. The extent of monitoring activities will be proportionate to the project risks and impacts. For projects with substantial displacement impacts, competent resettlement professionals will monitor the RAP implementation, design corrective actions, provide advice on compliance, and produce periodic internal monitoring reports which will include progress made against the KPIs specified in the RAP, to be submitted to the EBRD as part of the required periodic environmental and social monitoring reports.<br>The RAP will incorporate arrangements to monitor the effectiveness of LRMs during and following implementation. The mitigation of economic displacement will be considered complete when the completion audit concludes that affected persons or communities have received all of the assistance for which they are eligible and have been provided with adequate opportunity to restore their livelihoods. | Internal and external monitoring and evaluation processes are defined in the RAP. |

## 16.2 Scoping

In parallel with the ESIA, a Resettlement Action Plan (RAP) is being prepared to address land acquisition and involuntary resettlement associated with the Project. The RAP establishes the objectives, principles, and procedures governing compensation, assistance, and livelihood restoration measures for PAPs experiencing both physical and economic displacement. It documents baseline conditions through structured consultations with PAPs and relevant government stakeholders and defines measures to restore, and where possible improve, livelihoods and living standards. A comprehensive entitlement matrix will be included, covering all categories of affected parties identified through the resettlement planning process.

The RAP is being developed in compliance with applicable national legislation of the Republic of Uzbekistan, as well as the requirements of international lenders. A structured and systematic approach is being followed, comprising the following key components:

- **Identification and Mapping of Affected Land:** Land parcels affected by the Project are being identified and mapped in coordination with the local cadastral authorities. This process includes verification of farm and plot boundaries, review of official cadastral records, and classification of land tenure and use types, including formal leaseholders and seasonal workers.
- **Assessment of Potential Additional Displacement:** Consultations are being undertaken with relevant government agencies to determine whether the establishment of a buffer area or Health Protection Zone associated with airport operations may result in additional physical displacement beyond the current Project footprint.
- **Grievance Redress Mechanism:** A transparent, accessible, and culturally appropriate grievance redress mechanism is being established to allow PAPs to raise concerns, seek clarification, and resolve disputes throughout the resettlement planning and implementation process.
- **Cut-off Date Establishment and Disclosure:** A formal cut-off date for eligibility is being defined and communicated to all PAPs through appropriate channels and in local languages (Uzbek and Russian), in order to prevent speculative occupation and clearly define eligibility for compensation and assistance.
- **Census of Affected Persons and Assets:** A detailed census is being conducted to identify all affected land users, including land leaseholders, residential occupants, and other users, to confirm land use rights and determine eligibility and entitlements.
- **Socio-Economic Baseline Survey:** Socio-economic surveys are being carried out to assess household composition, income sources, livelihood strategies, and vulnerability status of PAPs. The findings provide the basis for the design of livelihood restoration and targeted assistance measures.
- **Asset Inventory and Valuation:** An inventory of affected assets is being prepared, including structures, crops, and both fruit-bearing and decorative trees. Valuation is being undertaken by certified and licensed valuation experts in accordance with applicable standards.
- **Compensation and Livelihood Restoration Measures:** Define compensation entitlements for PAPs, including additional assistance for vulnerable households, and design appropriate livelihood restoration programmes.
- **Implementation, Monitoring, and Reporting:** The RAP will include an implementation schedule, clearly defined institutional responsibilities, and monitoring and evaluation arrangements to track progress, ensure compliance, and assess the effectiveness of resettlement outcomes.

## 16.3 Baseline Conditions

### 16.3.1 Project Area of Influence and Affected Households

Within the specific context of land acquisition and involuntary resettlement, the AoI is applied in a differentiated and proportionate manner, reflecting the predominantly localised nature of land-related impacts. Direct impacts associated with permanent and temporary land acquisition, physical displacement, economic displacement and resettlement are confined to the Project footprint and immediately adjacent areas where land is required for Project components, including the directly affected makhallas. The wider 5 km AoI is therefore used primarily as a contextual framework rather than to define additional areas of direct impact. It supports characterisation of the broader socio-economic and land-use setting, including prevailing livelihood strategies, land dependency, agricultural practices and settlement patterns, and facilitates identification of potential indirect, induced or cumulative sensitivities that could reasonably arise, such as increased pressure on land resources, changes in land-use dynamics, or altered access to agricultural or communal resources.

Within the primary impact area, a census, asset inventory and socio-economic study of affected households were undertaken by NBT/Oqtavia between 8 and 20 January 2026. A total of 58 households, comprising 339 individuals, participated in the census. A further six households declined to participate. Based on the average household size of 5.8 members identified through the socio-economic survey, these non-participating households are estimated to comprise approximately 35 additional individuals. Accordingly, the Project is expected to affect a total of approximately 64 households, comprising an estimated 374 people.

Of the estimated 64 affected households, 21 are physically displaced and 44 are economically displaced, with one household experiencing both physical and economic displacement. No involuntary resettlement or physical displacement is expected outside the primary impact area. Consequently, detailed census activities, asset inventories and resettlement assessments have focused on the directly affected makhallas. These studies provide the basis for the Project Resettlement Action Plan (RAP), including identification of affected persons, assessment of impacts, and development of appropriate compensation and livelihood restoration measures.

96% of the 58 households that participated in the census reside in Urtachirchik District, while the remaining 4% reside in Kuyichirchik District. All physically displaced households are located within Bakavul village, Khalgabad makhalla, within the Project site. Workers and farm owners associated with the affected landholdings reside predominantly to the south and north of the Project site.

There are 14 farm owners out of the 20 identified as affected. The remaining six farm owners declined to participate in the census and are therefore not represented on the map. Their exclusion from the mapped dataset does not indicate that they are unaffected; they have been accounted for in the overall estimate of affected households and population described above.

### 16.3.2 Land Tenure

#### 16.3.2.1 Land Tenure

Uzbekistan has a highly formalised cadastre system and a strong land administration. All land is owned by the State and classified into eight cadastral categories. Land users access land primarily through long-term leases, typically ranging from 30 to 49 years for agricultural land, depending on contract and land type, and up to 100 years for residential land. While land remains state-owned, recent reforms have enabled limited private ownership of residential plots (i.e. up to 0.04 ha per family) through public auctions.

In Uzbekistan, state-owned agricultural land and assets become available for allocation primarily when a previous lease expires, typically after 30 or 49 years, or when land is repossessed by the state following a dispute. The acquisition of such land can only take place through the E-Auksion platform, which is the sole legally authorized channel for these transactions. Launched in 2021, the platform aims to improve transparency in the allocation of land and other state assets. It is operated by the Joint-Stock Company “Organization of Electronic Online Auctions,” under the supervision of the State Assets Management Agency (UzSAMA). Regional and national agricultural and commercial authorities are responsible for uploading the available land plots to the platform.

Stakeholders reported familiarity with E-Auksion, though participation remains limited due to perceived unaffordability of land. This understanding informs the RAP, particularly in determining compensable land tenure arrangements and evaluating alternative livelihood options.

The platform operates on a fully digital basis. Participation requires registration using an electronic signature and the payment of a deposit, set between 5 and 15% of the auction’s starting price. The bidding process is automated. For each auction, the platform provides the starting price, deposit amount, auction date and time, and application deadline. For agricultural land, additional information is available, including plot size, soil type, soil fertility indicators, recommended crops, lease duration, and land slope.

Auctions proceed only if at least two participants are registered at the scheduled start time. Bidders may place step-based bids during the auction or submit a higher non-step bid before the auction opens. The winning bidder must pay the full auction amount within a short timeframe, either 10 or 15 days depending on the total transaction value. No deferred payment mechanisms are available. If the winner fails to complete the payment within the deadline, the deposit is forfeited.

No additional costs are borne by the buyer beyond the final auction price. A 1% operational fee is charged to the state via the platform to cover maintenance and operating costs.

Following full payment, a digital protocol with a QR code is issued and serves as the legal document for the registration and transfer of land-use rights. Deposits are automatically refunded to unsuccessful bidders. All payments, transfers, and auction results are processed and published electronically.

Land parcels of varying sizes are listed shortly after becoming available and typically remain on the platform for only one to two weeks. As a result, the timing and location of land availability are difficult to anticipate.

#### 16.3.2.2 Agricultural Land

The agricultural sector has undergone several waves of cadastral and structural reforms aimed at improving productivity or farmer revenue. Past reforms (i.e. in 2004, 2008, 2015, 2019) have alternated between consolidating small farms into larger units to reach economically viable scales, and subdividing land to enhance farmers’ income and autonomy. The most recent reform, the 2019 “Optimization” Reform, consolidated smaller agricultural farms into larger units. This consolidation process is no longer ongoing today, but its effects remain visible in current land-use patterns.

Within the Project’s area, the three legally recognised types of agricultural land users are present, varying mainly in operational scale and tenure arrangements (see Table 16-2).

**Table 16-2 Agricultural Businesses and Associated Tenure System**

| TYPE | DESCRIPTION | AVERAGE AREA (HA) | TENURE SYSTEM | NUMBER WITHIN PROJECT AREA |
|---|---|---|---|---|
| Cluster | Entity with shares among members for commercial farming, which also conducts processing activities. | 1000+ ha | 30–50year leases; non inheritable; partial state control over crop production. | 2 |
| Farm | Registered business owned by natural person(s), with household and hired labour supporting operations. | 50-100 ha | 30–50year leases; non inheritable; partial state control over crop production. | 16 |
| Dehkan | Registered entrepreneurial small farm based on family labour for personal/commercial production. | ~1 ha | Full ownership; inheritable; no state control over crop production; no outright sale or foreign ownership. | 3 |

#### 16.3.2.3 Residential Land

Residential land within settlements is state-leased for up to 100 years but can be privatised through auctions for individual housing since 2024 reform (i.e. up to 0.04 ha per family).

Small garden plots attached to households, known as tomorka, are typically below 1 ha in size. They fall under residential land, not agricultural land, and are used for household consumption or small-scale market sales. These land holdings are considered during the RAP for compensation planning and SEP community engagement, particularly regarding vulnerable households.

### 16.3.3 Land Requirement and Site Characteristics

The proposed Project is planned to be developed on a plot of approximately 1,300 hectares. Observations from site visits conducted by the ESIA team indicate that the site is predominantly used for agricultural purposes, including the cultivation of rice, cotton, pulses, and vegetables. In addition to these cultivated fields, there are small patches of land with fruit trees, primarily concentrated towards the central portion of the site. During the site visit, livestock grazing, particularly cattle herds, was also observed across various sections of the site.

Within the Project area, a small residential community is located in the northeastern section, with a substantial portion situated within the planned Project footprint. A few small structures were also noted in three separate locations, including a building used by a local farmer, an older structure likely previously used for equipment storage, and an abandoned building. Based on GIS data provided by the Client, four small graveyards (graveyards) are present within the Project site, the largest of which covers approximately 1.3 hectares.

The site contains a network of drainage ditches and irrigation channels, supporting existing agricultural activities. In addition, overhead transmission lines (OHTL) and internal access roads traverse the Project site, providing connectivity and electrical infrastructure.

At the time of writing this ESIA, the Project had not yet entered the detailed design phase and associated facilities and expansion areas had not been clearly defined. Consequently, the present ESIA covers only the layout of the main terminal (hereafter, Main Site'), for which the design has already been finalised.

Table 16-3 below presents a summary of all Project components concerned by land acquisition, as well as the area (ha) required by each of them.

**Table 16-3: Summary of Land Requirements**

| SITE DESCRIPTION | TEMPORARY AREA (HA) | PERMANENT AREA (HA) |
|---|---|---|
| Main Terminal | 0 ha | 1,300 ha |
| Public Safety Buffer Zones | To be defined | To be defined |
| **Associated Facilities** | | |
| Transportation Infrastructure, including the West Highway Interchange and toll road | To be defined | To be defined |
| Water Pipelines | | |
| Waste Water Treatment Plant | | |
| Power Supply Infrastructure (electricity and gas) | | |
| Communication Infrastructure | | |
| **Total Land Requirements** | **-** | **1,300 ha** |

### 16.3.4 Associated Facilities

The location and design of the associated facilities have not yet been finalised and based on preliminary planning, the associated facilities are expected to include the following:

- Access Roads:
  - A 2 km-long connecting access road (Main access Road) to the west of the Project site, connecting to the planned future toll road.
  - A 3.5 km-long Service Road, connecting to the Eastern part of the Project Site, connecting to the planned future toll road to the north.
- The national power utility provider will supply electricity to the Project via a 110 kV connection to a dedicated power intake facility which will be located near the western boundary of the Project site.
- Fuel supply line between the Rail Receipt Pump Bay to the eastern Project boundary, about 140m long.
- Diverted irrigation canals and collectors.

### 16.3.5 Administrative Organisation

The Project's Main Site is located approximately 35 km south of Tashkent City, within the Middle and Lower Chirchik Districts, a predominantly flat rural area in Tashkent Province. The site spans about 6 km in length and 2.2 km in width, covering roughly 13 km² (1,300 ha), and lies adjacent to the village of Yangitosh to the south.

Planned infrastructure includes a passenger terminal building with a total area of 208,364 m², an air traffic control tower reaching 77 meters in height, and comprehensive airside facilities comprising two 4,000 m runways, associated taxiways, aprons, and lighting systems. Landside facilities are organized into passenger and support zones, with separate access roads for the terminal, presidential, and general aviation terminals, along with cargo and maintenance areas.

An expansion of the Main Site is anticipated by 2065. Since the detailed design for this expansion has not yet been finalized, the specific land requirements remain undefined.

The Project footprint extends across four makhallas: Khalkobod and Yangiyul in Urtachirchik District, and Surum and Sergeli in Kuychirchik District, all within Tashkent Region. These administrative units serve as the primary local governance structures overseeing land acquisition and resettlement processes at the community level.

In Uzbekistan, makhallas constitute the lowest tier of administrative and community organisation and play a central role in local governance and social cohesion. A makhalla typically comprises several hundred households and functions as both an administrative and a social institution. Each makhalla is headed by an elected chairperson and supported by a council and is responsible for addressing a wide range of local matters, including social welfare support, assistance to vulnerable households, family and youth affairs, elderly care, neighbourhood safety, and facilitation of small-scale economic and community initiatives. Makhallas also serve as an important interface between residents and higher levels of government, particularly in relation to household registration, community consultations, and dissemination of official information.

The makhallas within the Project area fall under the jurisdiction of two districts: Urtachirchik District and Kuyichirchik District. Districts represent the intermediate level of administration between regional authorities and local communities. District governance structures consist of a combination of elected bodies and appointed officials, with district leadership approved at the regional level. District administrations are responsible for overseeing public services such as education, healthcare, public infrastructure, land administration, taxation, and law enforcement, as well as for coordinating local development planning and budget allocation across multiple makhallas.

Urtachirchik District and Kuyichirchik District are predominantly rural districts located within the Tashkent Region. Both districts form part of the wider peri-urban zone surrounding Tashkent City and are characterised by a mixed rural economy that is increasingly influenced by regional infrastructure development and urban expansion. The population in both districts is distributed across a network of rural settlements and makhallas, with household structures typically comprising extended family units. Settlements are generally low-density, with residential plots closely linked to household agricultural activities. According to data published by the State Statistics Committee of the Republic of Uzbekistan and district-level administrative sources, these districts exhibit population growth trends consistent with the broader Tashkent Region, driven by natural increase and proximity to economic opportunities in and around the capital.

Within the context of land acquisition and involuntary resettlement, district administrations play a key coordinating role, including interaction with land management authorities, valuation bodies, and compensation-related committees, while makhallas provide community-level engagement, local knowledge, and support in identifying affected households and facilitating

communication with residents. This multi-tiered administrative structure forms the institutional backdrop against which land acquisition processes and resettlement-related interactions take place in the Project area. This administrative structure underpins the RAP implementation, ensuring proper identification of affected households, coordination of compensation, and livelihood restoration. It also guides SEP engagement, providing channels for consultation and grievance resolution at both community and district levels.

### 16.3.6 Livelihoods and Economic Activities within the Project footprint

Agriculture remains the dominant livelihood base in both Urtachirchik and Kuyichirchik districts. Secondary sources, including regional development reports and district hokimiyat publications, indicate that a significant share of households depend on irrigated agriculture, horticulture, orchards, livestock rearing, and dekhkan (household) plots for income generation and subsistence. These activities are often complemented by seasonal wage labour, small-scale trade, and service-based employment.

Given their location within the Tashkent economic agglomeration, both districts are experiencing gradual diversification of livelihoods. Infrastructure investments and industrial development in the region have expanded access to non-agricultural employment, particularly for younger and working-age populations. However, land-based activities remain a key source of economic security for many households, especially those residing in outer makhallas.

### 16.3.7 Estimated Number of Affected Households[89]

A census, asset inventory and socio-economic study of affected households were performed by NBT/Oqtavia from 08/01/2026 to 20/01/2026.

A total of 58 households (339 individuals) were recorded during the census. Six additional households declined to participate in the census. Rounding up the average household size of 5.8 members (as per the socioeconomic survey), these non-participating households are estimated to account for approximately 35 additional individuals.

Consequently, the Project is expected to affect a total of 64 households, including an estimated 374 people. As outlined in more detail in section 5.0, 21 of these households are physically displaced, while 44 are economically displaced (one of which is also affected by physical displacement).

As shown in Table 16-4, 96% of Project-affected households (PAHs) reside in the Urtachirchick district and the remaining 4% in the Kuyichirchik District. This percentage includes only the 58 households who accepted to participate to the census.

Figure 16-4 shows the PAHs' residential locations on the maps. As shown in this map, 100% of physically affected households are located in Bakavul village, in Khalgabad makhalla within the Project Site, while all workers and farm owners reside to the south and north of the Site. Please note that only 14 farm owners are depicted in this map out of 20 affected. This is because six of the farm owners refused to participate in the census and have consequently not been counted.

[89] This report defines a household as a person or a group of related or unrelated persons who live together in the same dwelling unit(s), who acknowledge one adult male or female as the head of the household, who share the same housekeeping arrangements and who are considered a single unit (Statistical Office of the United Nations 1993).

**Table 16-4: Overview of Affected Households and Individuals, Disaggregated by Displacement Type and Place of Residence**

| District | Makhalla | Village | Physically displaced | | Economically displaced | | Total displaced | |
|---|---|---|---|---|---|---|---|---|
| | | | Number of PAH | Number of PAP | Number of PAH | Number of PAP | Number of PAH | Number of PAP |
| Urtachirchik | Khalgabad | Bakavul | 21 | 114 | 1 | 6 | 22 | 120 |
| | Yangiyul | N/A | 0 | 0 | 34 | 209 | 34 | 209 |
| | Total | N/A | 21 | 114 | 35 | 215 | 56 | 329 |
| Kuyichirchik | Sergeli | N/A | 0 | 0 | 1 | 7 | 1 | 7 |
| | Surum | N/A | 0 | 0 | 1 | 3 | 1 | 3 |
| | Total | N/A | 0 | 0 | 2 | 10 | 2 | 10 |
| **TOTAL** | | | **21** | **114** | **44[a]** | **270[b]** | **64** | **374** |

[a] *Six economically displaced households refused to participate in the census.*
[b] *Includes the estimates of the number of household members in the six households who did not participate in the census.*

### 16.3.8 Loss of Assets

Land acquisition for the Project will result in the loss of residential and agricultural land, structures, trees and crops. Twenty-one households are physically displaced and will lose a total of approximately 2.30 ha of residential land, with all residential plots occupied by physically displaced households being fully acquired. In addition, 20 affected households/farms will lose portions of agricultural land, with six farms losing their entire landholding.

A total of 4,354 trees will be affected, comprising 660 trees on residential land and 3,694 on agricultural land. The majority of residential trees are young fruit or ornamental trees, while 2,725 agricultural trees on two farms are productive and income-bearing.

The Project will also affect 1,274 structures, including 32 houses, 1,085 buildings, 57 canopies, 44 fences, 42 sheds/stables and other structures. Compensation for affected agricultural and residential crops, trees and structures is addressed in the RAP.

### 16.3.9 Vulnerable Groups

The IFC's Performance Standard 1 (PS1) on the Assessment and Management of Environmental and Social Risks and Impacts defines vulnerability as: "individuals and groups that may be directly and differentially or disproportionately affected by the project because of their disadvantaged or vulnerable status".

Since 2025, Uzbekistan has defined its national poverty line as 669,000 soums (USD 54.5) per person per month, which is less than half of the $126 threshold applied by the World Bank to lower middle-income countries such as Uzbekistan. With the average household size having been calculated as 5.8 for PAHs, the national poverty line becomes 3,880,200 soum for a household (669,000 * 5.8 = 3,880,200). Figure **16-1** shows that more than three-quarters of households (77.59%) reported earning a household income of more than 3,000,000 soum per month. Additionally, all households that reported receiving State social benefits claimed to earn less than 3,000,000 soum (245 USD) per month. Taking into consideration the national poverty line in combination with the local context, households earning less than 3,000,000 soum per month are considered very low-income and are considered to be a vulnerable group.

Disability-headed households have also been identified as a vulnerable group. Indeed, all three households where an individual reported being unable to work due to a disability or disease were also classified as very low-income, highlighting the vulnerability caused by disability.

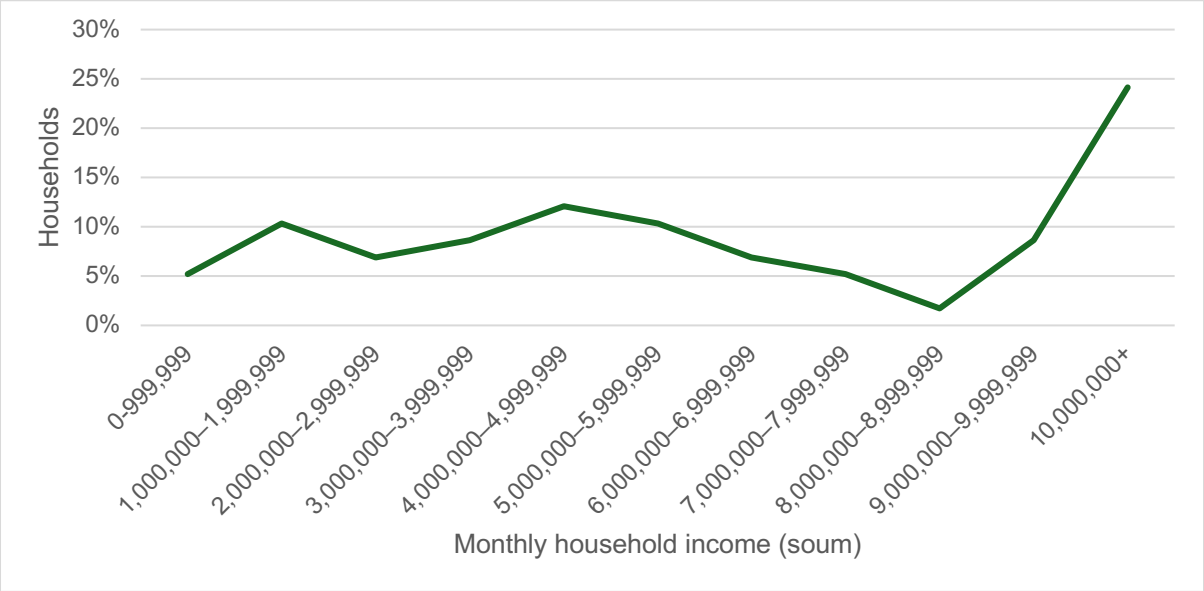



**Figure 16-1: Monthly Household Income**

Based on the quantitative and qualitative data from the Resettlement Action Plan (RAP), this assessment identifies two key vulnerability categories among the physically and economically displaced population[90]:[91]

- **Households headed by persons with disabilities**: defined as households where the head has a disability that prevents them from engaging in work; and
- **Low-income households**: defined as households with a monthly income below 3,000,000 soum.

Applying these criteria, 22.4% of Project-Affected Households (PAHs) are classified as vulnerable (Table 16-5). Among these, twelve households (20.7%) fall into the very low-income category, while one household (1.7%) is headed by a person with a disability.

**Table 16-5: Vulnerable Households**

| Vulnerable households | Vulnerability criteria | Number | percentage |
|---|---|---|---|
| Not vulnerable | | 45 | 77.6% |
| Vulnerable | | 13 | 22.4% |
| | Very low income | 12 | 20.7% |
| | Disabled-headed | 1 | 1.7% |

[90] Elderly-headed households were not considered vulnerable in this RAP as all households found to be headed by someone aged 65 and over also contained multiple working-age household members.

[91] The four female-headed households affected by this RAP have, on average, higher incomes than male-headed households. As such, they were not considered as a vulnerable group in the context of this RAP.

| Vulnerable households | Vulnerability criteria | Number | percentage |
|---|---|---|---|
| Total | | 58 | 100% |
| **Source:** RAP Data- July 2026 | | | |

### 16.3.10 Stakeholder Engagement with Makhallas within the AoI

To support the socio-economic baseline assessment, the Project engaged communities within the 5 km Area of Influence (AoI) through focused consultations and a household survey across eleven makhallas selected for their proximity to the Project footprint and socio-economic relevance: Aranshi, Yongichkoli, Kim Pen Khva, Dustlik, Tarakkiyot, Khalkobod, Yangiyul, Surum, Kushek, Sergeli, and Beruniy. Engagement activities combined Focus Group Discussions (FGDs) and a socio-economic household survey to capture community perspectives on livelihoods, household composition, social structures, and local priorities, with particular attention to gender and vulnerable groups.

Multiple FGDs were conducted in eight makhallas, Surum, Yangiyul, Khalkobod, Taraqqiyot, Kushek, Beruniy, Sergeli, and Dustlik to ensure inclusive representation. These included mixed-gender groups with at least 30% women participants, women-only groups to explore gender-specific perspectives, and sessions with vulnerable groups, such as the elderly, low-income households, and socially marginalised community members. Tailored discussion guides and survey questionnaires focused on livelihoods, income sources, access to services, and other socio-economic indicators relevant to the baseline assessment. These activities collectively provide a comprehensive socio-economic profile of communities within the AoI, capturing gender, vulnerability, and livelihood diversity, forming the foundation for assessing potential Project impacts, and guiding monitoring and mitigation planning.

## 16.4 Area of Influence and Receptors

### 16.4.1 Area of Influence

For the ESIA, the Project's Area of Influence (AoI) has been defined as a 5 km radius around the Project footprint. This boundary captures the potential direct, indirect, and cumulative impacts of the Project, ensuring that the assessment reflects the full extent of environmental and social risks.

For land acquisition and involuntary resettlement, impacts are largely localized. Direct impacts including permanent and temporary land acquisition, physical displacement, and economic displacement are expected to occur within the Project footprint and adjacent areas, primarily in the makhallas of Khalkobod and Yangiyul (Urtachirchik District) and Surum and Sergeli (Kuyichirchik District).

The wider 5 km AoI provides context, supporting understanding of socio-economic conditions, land use, settlement patterns, and potential indirect or cumulative effects, such as changes in land access or agricultural practices. No resettlement or physical displacement is anticipated beyond the Project footprint, and detailed surveys have been limited to the directly affected makhallas.

### 16.4.2 Receptors

**Table 16-6 E&S impact receptors – Land Acquisition and Involuntary Resettlement**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Physically Displaced Households (PAHs) | **High** | Households whose residential land, structures, or productive assets fall within the Project footprint. Impacts include relocation and loss of property. |
| Economically Displaced Persons (PAPs) | **High** | Individuals or households affected by loss of land access, crops, or livelihood sources. They rely on agriculture and small-scale enterprises for income and subsistence. |
| Vulnerable Groups | **High** | Includes elderly, female-headed households, low-income households, and other socially or economically vulnerable persons who may face greater hardship from displacement or economic loss. |
| Agricultural Land | **High** | Productive land supporting crops (rice, cotton, pulses, vegetables), orchards, and livestock grazing, forming the primary livelihood base for most households. |
| Residential Communities | **Medium** | Settlements within or adjacent to the Project footprint within 5km AoI, including Yangitosh community, providing homes, social networks, and access to services. |
| Local Infrastructure and Utilities | **Medium** | Includes access roads, irrigation canals, powerlines, and pipelines that support livelihoods and connectivity; some may require relocation or modification. |
| Natural Resources / Water Bodies | **Medium** | The Chirchiq River and associated irrigation networks supporting agricultural activities; indirect impacts may occur from changes in access or land use. |

## 16.5 Impacts, Mitigation, Management & Residual Impacts

### 16.5.1 Construction Phase

#### 16.5.1.1 Project Affected Households (PAHs)

During construction, 21 households comprising 114 individuals in Khalkobod will experience physical displacement due to land acquisition for the Main Site. The direct impacts on these households include the loss of residential structures, small household plots, ancillary buildings, and access to local infrastructure that supports daily routines, such as pathways, water supply, and small garden plots (tomorka). The displacement may also affect social networks and access to community facilities, particularly for vulnerable household members.

Mitigation measures are comprehensively addressed through the Resettlement Action Plan (RAP). Households will receive full replacement cost compensation for all lost structures, land, and assets, ensuring no depreciation in value. The RAP also provides for assistance with relocation logistics, including transport of household belongings, re-establishment of utilities such as electricity, water, and sanitation connections, and timely notice in advance of relocation to allow households to make arrangements. Affected households are actively supported in identifying suitable alternative housing within or near their existing communities to maintain social cohesion and continuity of livelihoods.

Special attention is given to vulnerable groups, including elderly residents, female-headed households, and low-income families. These households receive additional support such as priority in selecting replacement housing, assistance with accessing social support services, and monitoring of relocation progress to ensure equity and protection from disproportionate

impacts. Continuous engagement with affected households is maintained through regular consultations, grievance mechanisms, and participation in decision-making on relocation and compensation matters.

Furthermore, the RAP includes livelihood restoration components to address any temporary disruption of income-generating activities caused by relocation. This may involve connecting affected households with alternative land parcels, facilitating short-term financial assistance, and supporting access to local employment opportunities where feasible. The integration of these measures ensures that households can reestablish their living conditions without long-term disruption to their social, economic, or cultural wellbeing.

As a result of these structured mitigation measures, the residual impacts on physically displaced households are expected to be low, with full restoration of housing, access to services, and livelihood security following relocation.

#### 16.5.1.2 Economically Displaced Persons

Economic displacement during the construction phase will affect a total of 45 households comprising 235 individuals, of whom approximately 52% are women, across the makhallas of Khalkobod, Yangiyul, Sergeli, and Surum. Economic displacement arises primarily from the loss of access to agricultural land, farm-based businesses, employment opportunities, crops, orchards, and livestock resources that constitute the main sources of household income and food security.

Of the affected households, 21 households (88 individuals) will experience economic displacement due to the loss of farm businesses, including one female-headed household comprising 10 individuals. A further 24 households (147 individuals) will be affected by the loss of employment associated with agricultural and farm-based activities, including two female-headed households comprising 12 individuals. The potential impacts include reduced household income, disruption of farming and employment cycles, increased economic vulnerability, and heightened livelihood risks, particularly for households dependent on seasonal agriculture or wage labour.

Findings from the Resettlement Action Plan (RAP) business survey indicate that 18 affected businesses were assessed to understand the scale and nature of livelihood impacts. Of these, 15 businesses anticipate that the losses associated with land acquisition and displacement will result in significant adverse effects on their livelihoods. These impacts are primarily linked to the reduction or loss of productive land, business premises, and income-generating assets, which are critical to the sustainability of existing operations and the economic security of business owners and their households.

The RAP also identifies secondary livelihood impacts related to employment losses. Business owners reported that approximately 65 seasonal farm workers, typically engaged on a temporary or cyclical basis, are expected to lose employment as a result of the Project. These secondary impacts may further exacerbate livelihood vulnerability, particularly among households with limited access to alternative income sources or social safety nets.

Mitigation measures will be implemented through the Livelihood Restoration Plan (LRP), which will establish a structured and phased approach to restoring income and livelihoods in accordance lender's requirement. Affected households and business owners will be entitled to cash compensation for lost income, crops, and productive assets, calculated based on replacement value and aligned with prevailing market conditions. Compensation payments will be scheduled to minimise income disruption and avoid gaps in household earnings. Where feasible, households affected by land-based livelihoods are supported in accessing alternative productive land or lease arrangements to enable continuation of agricultural activities.

The LRP will further provide temporary livelihood support, including priority access to Project-related employment during construction, skills training, and capacity-building programmes

tailored to local economic opportunities such as horticulture, small-scale trade, and non-agricultural vocational skills. Special attention is given to female-headed and low-income households, ensuring equitable access to livelihood restoration measures and targeted support where required.

Implementation of the LRP will be supported by ongoing stakeholder engagement and monitoring to assess the effectiveness of livelihood restoration measures and allow for adaptive management where outcomes fall short of expectations. With the full implementation of the RAP and LRP, residual impacts on economically displaced households are expected to be moderate and temporary, limited to the construction period, with affected households anticipated to achieve restoration or improvement of pre-Project livelihood levels over the medium term.

#### 16.5.1.3 Vulnerable Groups

Of the 58 PAHs surveyed, 13 households (22.4%) are classified as vulnerable, including 12 households (20.7%) in the very low-income category and one household (1.7%) headed by a person with a disability. These vulnerable households are particularly sensitive to construction-related impacts, including temporary or permanent displacement, loss of access to livelihoods, disruption to social support networks, and challenges in navigating compensation processes. Without targeted interventions, such households are at heightened risk of prolonged socio-economic hardship.

Mitigation measures, implemented through the RAP and Livelihood Restoration Plan (LRP), are specifically designed to address these vulnerabilities. Physically displaced vulnerable households receive personalized relocation support, including assistance in identifying suitable alternative housing, help with moving, and priority scheduling to minimize disruption. Vulnerable households are also provided enhanced guidance and facilitation during compensation processes to ensure they fully understand their entitlements and can participate in decision-making effectively.

For economically vulnerable households, the LRP provides priority access to livelihood restoration programs, including temporary financial support, replacement of agricultural inputs, skill development opportunities, and access to alternative land or resources for income generation. Households dependent on small-scale agriculture, livestock, or dehkan plots are given particular attention to ensure continuity and restoration of livelihoods.

Continuous monitoring, follow-up, and grievance support are integral to the mitigation strategy. Community liaison officers, together with makhalla representatives, provide ongoing assistance to vulnerable households, ensuring that any emerging issues during construction or relocation are addressed promptly. Targeted consultations are conducted to guarantee that women, elderly, and socially marginalized household members are actively involved in decisions affecting their welfare. As a result of these measures, residual impacts on vulnerable households are expected to be low, with affected households able to restore their livelihoods, living conditions, and access to social services without experiencing disproportionate long-term hardship.

#### 16.5.1.4 Agricultural Land and Livelihood Resources

Construction will directly impact agricultural land within the 1,300-hectare Project footprint, including rice, cotton, pulses, vegetables, orchards, and grazing areas, which form the primary source of income and subsistence for affected households. The potential impacts include permanent loss of arable land, disruption of cropping cycles, loss of access to orchards and grazing areas, reduced household food security, and temporary reductions in income from agricultural activities. Indirect impacts may also arise if construction activities restrict access to adjacent lands, irrigation networks, or shared agricultural infrastructure.

Mitigation measures are implemented through the Resettlement Action Plan (RAP) and Livelihood Restoration Plan (LRP). Households affected by permanent or temporary land loss receive full compensation for lost crops and productive assets, calculated based on crop type, seasonal productivity, and market value. Where feasible, affected households are provided with alternative plots of land within the local area to continue cultivation or grazing. Construction schedules are coordinated with households to avoid interference with critical planting and harvesting periods, minimizing seasonal income losses.

The LRP will further support households in restoring and diversifying livelihoods through technical assistance, agricultural extension services, and access to inputs such as seeds, fertilizers, and equipment. For households unable to resume full agricultural activity on remaining land, the LRP provides alternative livelihood options, including training in non-agricultural income-generating activities and priority access to Project-related employment opportunities. Vulnerable households, including female-headed households, elderly, and low-income families, receive additional support tailored to their specific needs, ensuring equitable access to compensation and livelihood restoration measures.

Monitoring is conducted throughout the construction period to verify that compensation, land access, and livelihood support measures are implemented effectively. Engagement with affected households continues through the SEP to address concerns promptly and adjust measures where necessary. As a result of these comprehensive mitigation measures, residual impacts on agricultural land and livelihoods are expected to be low to moderate during construction, with long-term livelihoods restored post-construction through targeted RAP and LRP interventions.

#### 16.5.1.5 Local Infrastructure and Utilities

Construction activities within the Project footprint may temporarily or permanently affect local infrastructure and utilities, including access roads, internal farm tracks, irrigation canals, drainage collectors, overhead transmission lines, and buried pipelines that currently support residential access, agricultural production, and basic services within the affected makhallas. Disruptions may arise from excavation, earthworks, realignment of utilities, or temporary closures required for construction safety. These impacts may restrict access to agricultural plots, reduce the reliability of irrigation systems, or interrupt electricity and water supply, thereby affecting household mobility, crop productivity, and livelihoods during the construction period. Prior to construction, detailed mapping of all affected infrastructure and utilities will be undertaken in coordination with district authorities, utility providers, and makhalla representatives. Temporary diversions, alternative access routes, and provisional service connections will be established where existing roads, canals, or utilities are disrupted. Construction scheduling will be coordinated to avoid peak agricultural periods and to minimize the duration of service interruptions, particularly for irrigation canals critical to crop production.

Where permanent relocation or modification of infrastructure is required, affected households and land users will be consulted in advance through SEP mechanisms and for households whose livelihoods depend on irrigation or access roads, the LRP provides transitional support and compensation for any verified losses attributable to temporary disruption. RAP implementation teams will work closely with contractors to ensure that access to residences, farmland, and communal facilities is maintained at all times or restored as quickly as possible following construction activities.

With the application of these measures, including advance planning, continuous coordination with affected communities, residual impacts on local infrastructure and utilities are expected to be low and temporary, with no long-term loss of access or essential services anticipated.

#### 16.5.1.6 Residential communities within Project AoI

During the construction phase, residential communities located within and adjacent to the Project footprint and across the wider 5 km Area of Influence may experience temporary disturbances arising from construction activities. These impacts include elevated noise levels from earthworks, machinery, and vehicle movements; increased dust emissions affecting air quality and residential amenity; and higher traffic volumes on local roads, potentially affecting community safety and access to homes, services, and agricultural plots. Such disturbances may particularly affect sensitive receptors, including households located along access routes, elderly residents, children, and individuals with pre-existing health conditions.

Mitigation measures will be implemented through a combination of environmental management controls and structured community engagement in line with the Stakeholder Engagement Plan (SEP). Construction schedules, high-noise activities, and traffic routing will be communicated in advance to affected makhallas through regular meetings, public notices, and coordination with makhalla leaders. Dust impacts will be managed through routine watering of unpaved surfaces, covering of construction materials, speed controls for construction vehicles, and prompt rehabilitation of disturbed areas. Noise impacts will be reduced by limiting construction activities to daytime hours where feasible, maintaining equipment in good working condition, and applying site-specific noise controls in areas close to residential receptors. A traffic management plan will be implemented to manage vehicle movements, maintain safe pedestrian access, and minimise disruption to local transport routes, with particular attention to peak community activity periods.

With these mitigation measures in place, impacts on residential communities are expected to remain low in significance and temporary in nature, confined to the construction period, and not result in long-term adverse effects on community well-being or access to services.

#### 16.5.1.7 Natural Resources and Water Bodies

During the construction phase, the Project has the potential to affect irrigation canals, drainage networks, and the Chirchiq River, which form a critical component of the local agricultural system and support livelihoods within the Project footprint and the wider 5 km Area of Influence. Construction activities associated with earthworks, excavation, road crossings, and the diversion of irrigation channels may result in temporary obstruction of water flows, localized sedimentation, and short-term restrictions on access to irrigation infrastructure. These impacts could disrupt irrigation supply to downstream agricultural plots, particularly during sensitive planting and growing periods, and may indirectly affect crop productivity and household incomes for farming-dependent households.

Construction planning will incorporate early identification and mapping of all irrigation canals, collectors, and drainage features, allowing for the design of temporary bypasses, staged diversions, or protective works to maintain continuous water flows. Where canal diversions are unavoidable, works will be scheduled outside of peak irrigation periods where feasible, and temporary alternative water supply arrangements will be established in consultation with affected farmers and makhalla representatives.

Sediment and erosion control measures will be implemented to prevent the degradation of surface water quality, including stabilization of exposed soils, controlled stockpiling of excavated material away from watercourses, and regular inspection of drainage pathways. Access to irrigation infrastructure will be maintained throughout construction, and any temporary access restrictions will be communicated in advance through SEP led engagement with water users and local communities.

For households whose livelihoods depend on irrigation supported agriculture and who may experience temporary disruption to water access, RAP and LRP provisions apply. These include compensation for verified crop losses, transitional livelihood support where income impacts occur, and restoration of irrigation access to pre-Project or improved conditions

following construction. Coordination between construction contractors, environmental management teams, and RAP/LRP implementation team will ensure that livelihood impacts linked to water resources are identified early and addressed promptly.

With the application of these mitigation and management measures, construction-related impacts on natural resources and water bodies are expected to be temporary, localized, and reversible. Residual impacts are therefore assessed as low, as irrigation functionality, water quality, and livelihood dependencies will be maintained or restored through active management, monitoring, and livelihood restoration measures consistent with international good practice.

**Table 16-7 Land Acquisition: Impact Significance, Mitigation & Management Measures and Residual Impacts – Construction**

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Project Affected Households (PAHs) | High | Project Affected Households (PAHs) | High | Major | • Implementation of the approved Resettlement Action Plan (RAP) prior to commencement of construction activities<br>• Payment of full replacement cost compensation for residential land, structures, ancillary buildings, and household assets, without depreciation<br>• Provision of relocation assistance, including transport of belongings and support for re-establishing utilities (water, electricity, sanitation)<br>• Advance written notice and consultation with households to allow adequate relocation planning<br>• Assistance in identifying alternative housing within or near existing communities to maintain social networks<br>• Targeted support measures for elderly, female-headed, and low-income households, including priority relocation and enhanced facilitation<br>• Continuous consultation and access to the Project grievance mechanism throughout relocation | Moderate |
| Economically Displaced Persons | High | Economically Displaced Persons | High | Major | • Implementation of the Livelihood Restoration Plan (LRP) in coordination with the RAP<br>• Compensation for lost income, crops, and productive assets based on replacement value and prevailing market rates<br>• Compensation scheduling to avoid income gaps during construction<br>• Support for access to alternative agricultural land or lease arrangements, where feasible<br>• Provision of temporary livelihood support for households experiencing transitional income loss<br>• Priority access for affected households to Project-related employment opportunities during construction | Moderate |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Skills training and livelihood diversification support aligned with local economic opportunities<br>• Continuous monitoring of livelihood outcomes and adaptive management where restoration targets are not met | |
| Heightened risk for Vulnerable Groups | Medium | Vulnerable Groups | High | Moderate | • Identification of vulnerable households through RAP census and socio-economic surveys.<br>• Individualised assistance packages under the RAP and LRP tailored to household needs.<br>• Priority access to compensation, relocation assistance, and livelihood restoration measures.<br>• Additional facilitation during consultations and compensation processes.<br>• Targeted livelihood support, including replacement of agricultural inputs and transitional financial assistance.<br>• Regular follow-up and monitoring by community liaison staff and makhalla representatives | Negligible |
| Agricultural Land and Livelihood Resources | High | Agricultural Land and Livelihood Resources | High | Major | • Compensation for permanent and temporary land loss in accordance with the RAP<br>• Compensation for crop loss based on seasonal productivity and market value<br>• Coordination of construction activities to avoid critical planting and harvesting periods where feasible<br>• Provision of alternative land plots or restoration of access to remaining land where possible<br>• Livelihood restoration support under the LRP, including agricultural extension services and access to inputs<br>• Livelihood diversification support for households unable to continue farming activities | Moderate |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Local Infrastructure and Utilities | Medium | Disruption or relocation of access roads, irrigation canals, powerlines, and pipelines | Medium | Moderate | • Pre-construction mapping of all affected infrastructure and utilities<br>• Coordination with district authorities, utility providers, and makhalla leaders<br>• Provision of temporary access routes, diversions, and service connections during construction<br>• Advance notification to communities regarding planned disruptions<br>• RAP/LRP transitional support where infrastructure disruption affects livelihoods<br>• Timely reinstatement or permanent replacement of infrastructure following construction | Negligible |
| Residential communities within Project AoI | Medium | Residential Communities within Project AoI | Medium | Moderate | • Implementation of construction environmental management measures for noise, dust, and traffic<br>• Communication of construction schedules and activities through SEP mechanisms<br>• Dust suppression through watering, covering of materials, and vehicle speed control<br>• Restriction of high-noise activities to daytime hours where feasible<br>• Traffic management planning to maintain safe access to homes and farmland | Negligible |
| Natural Resources and Water Bodies | Medium | Temporary disruption of irrigation flows, water access, and potential sedimentation | Medium | Moderate | • Early identification and mapping of irrigation canals, drainage networks, and water crossings.<br>• Design and implementation of temporary bypasses or staged diversions to maintain continuous water flow.<br>• Scheduling of works outside peak irrigation periods where feasible.<br>• Sediment and erosion control measures to protect surface water quality. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Advance communication with water users through SEP engagement.<br>• Compensation for verified crop losses and livelihood impacts under the RAP and LRP.<br>• Restoration of irrigation infrastructure to pre-Project or improved condition following construction | |

### 16.5.2 Operation Phase

#### 16.5.2.1 Project Affected Households (PAHs)

During the operational phase, no additional physical displacement is anticipated, as all land acquisition and resettlement activities were completed during construction. However, households that were physically relocated (PAHs) may continue to experience residual socio-economic effects if livelihood restoration and post-resettlement support measures are insufficient or delayed. These effects could manifest as challenges in sustaining previous income levels, integrating into new communities, accessing essential services, or adapting to altered housing, land, and infrastructure conditions. Some households may also experience psychosocial stress due to changes in social networks, community ties, and proximity to workplaces or schools.

The Project will continue post-resettlement support to ensure sustainable livelihood outcomes and support activities which will include ongoing livelihood monitoring to assess household income levels, employment status, and access to agricultural or non-agricultural livelihood opportunities. Households will be offered targeted assistance to improve income-generating capacity, such as vocational training, access to credit or microfinance schemes, and guidance on alternative livelihood strategies.

Additionally, PAHs will retain access to the Project's grievance mechanism and local community engagement channels, enabling them to raise operational phase concerns or seek support for unforeseen socio-economic challenges. Coordination with local makhallas and district authorities will ensure that households are able to participate in community programs, access social services, and maintain connections to social networks, supporting social cohesion and well-being.

Periodic socio-economic surveys and monitoring will allow the Project to identify households or individuals experiencing difficulties and to implement adaptive measures in a timely manner. Such interventions may include temporary financial support, targeted livelihood restoration programs, or facilitation of access to public services such as health care, education, and utilities. The focus will be on ensuring that PAHs are not left worse off due to the Project and that their quality of life and economic stability are maintained or improved over time.

With these measures in place, the residual impact for PAHs is expected to be low, with any remaining adaptation or income restoration challenges being temporary, manageable, and responsive to targeted mitigation actions. Continuous engagement with the affected households and periodic evaluation of livelihood outcomes will ensure compliance with international standards and reinforce the Project's commitment to sustainable socio-economic development for relocated communities.

#### 16.5.2.2 Economically Displaced Persons

During the operational phase, economically displaced persons may experience a range of indirect impacts on their income and livelihood security. Households that previously relied on agriculture or small businesses within the Project footprint could face reduced access to productive land, irrigation infrastructure, or local markets, affecting their ability to generate income. Seasonal and casual employment, such as farm labour or temporary service work, may fluctuate due to changes in local demand, workforce dynamics, and shifts in land use patterns. Additionally, small-scale traders or service providers operating near the Project may experience disruptions or competition from new businesses and operational activities. These effects could exacerbate existing vulnerabilities, particularly for households with limited alternative income sources, low levels of education, or restricted access to financial resources. Furthermore, changes in local economic conditions may affect household expenditure patterns, access to food, and overall economic resilience.

To address these potential impacts, the Project will implement a comprehensive livelihood monitoring and support program, in line with lender's requirement. This includes continuous monitoring of income recovery for PAPs, ensuring that any negative effects are identified early. Targeted interventions may involve vocational training tailored to local employment opportunities, assistance in accessing permanent or temporary employment within Project operations, and facilitating access to microfinance or small business development programs to enhance income diversification. Coordination with local makhalla leaders will ensure that support reaches the most affected households and is culturally appropriate. The Project's grievance mechanism will provide a formal channel for PAPs to raise concerns about operational impacts on their livelihoods, ensuring timely resolution. Additionally, community engagement activities will include economic awareness sessions to help households adapt to market changes and explore alternative income options, particularly for women and vulnerable groups.

With these mitigation and management measures in place, residual economic impacts on PAPs are expected to be moderate to low. Households dependent on agriculture or seasonal labour may still experience temporary fluctuations in income due to market dynamics or operational changes, but these are anticipated to be mitigated over time through alternative livelihood support and targeted training programs. Effective monitoring and proactive engagement with PAPs are expected to maintain economic stability, reduce vulnerability, and enhance the capacity of affected households to adapt to long-term changes associated with Project operations.

#### 16.5.2.3 Vulnerable Groups

Vulnerable households including low-income families, female-headed households, elderly, and those with disabilities may experience disproportionate effects during the operational phase if post-resettlement support and community programs are insufficient. These groups are particularly sensitive to socio-economic changes, as they often have limited access to alternative income sources, financial resilience, or social safety nets. Potential impacts may include difficulty maintaining previously restored livelihoods, restricted access to employment opportunities created by the Project, reduced access to healthcare and social services, and challenges in participating fully in community or economic activities. Changes in local infrastructure, service provision, or land use patterns could also exacerbate vulnerabilities, particularly for households dependent on nearby agricultural land, water access, or community networks for subsistence. The compounded effects of these operational changes could lead to reduced income security, social marginalization, or a decline in overall well-being if not properly addressed.

The project will ensure social welfare coordination will be maintained in partnership with local authorities and makhalla committees to ensure vulnerable households can access state-provided support, healthcare, and education services. Engagement activities will prioritize vulnerable groups to ensure their voices are heard in operational planning, including grievance resolution, feedback mechanisms, and community consultation forums. Special attention will be paid to households headed by women or individuals with disabilities to ensure equitable participation and access to benefits. Additionally, operational monitoring will identify any emerging vulnerabilities linked to inflationary pressures, service disruptions, or environmental changes resulting from Project activities.

With proactive and targeted mitigation measures in place, residual impacts on vulnerable households are expected to be low to moderate. Continuous monitoring and adaptive management will allow the Project to respond quickly to unforeseen challenges, minimizing the likelihood of long-term socio-economic disadvantage.

#### 16.5.2.4 Agricultural Land

While the operation phase does not involve additional land acquisition, surrounding agricultural areas may experience several indirect or secondary impacts. Changes in land use patterns could occur due to increased operational activity, including traffic along access roads, site maintenance, or associated infrastructure works. These changes may influence local crop productivity by restricting access to fields, causing soil compaction along transport corridors, or affecting seasonal farming schedules.

Irrigation systems that support nearby farmland could also be indirectly affected. Operational water demands, maintenance of drainage channels, or modifications to irrigation infrastructure may alter the timing, availability, or quality of water for crops. Such changes could reduce yields for rice, cotton, pulses, vegetables, orchards, or pasturelands, affecting the livelihoods of smallholder and dekhkan farmers in the AoI.

The Project will maintain irrigation and access infrastructure to prevent negative effects on local agriculture. Coordination with local farmers and makhallas will ensure any operational adjustments do not compromise productive land use. In cases where residual impacts on agriculture are identified, compensatory or alternative livelihood support will be provided. Residual impacts on agricultural land are expected to be low to moderate, primarily due to indirect operational influences rather than direct acquisition.

#### 16.5.2.5 Residential communities within Project AoI

Residential communities within the 5 km Area of Influence (AoI) may experience a range of socio-economic and environmental changes during the operational phase of the Project. Increased traffic from passenger, cargo, and service vehicles could lead to congestion, higher noise levels, and safety risks, particularly along access roads connecting the Project site to nearby makhallas. Access to public services, such as healthcare, education, and local markets, could be temporarily constrained if operational demands intersect with existing infrastructure. In addition, increased demand for utilities, including water, electricity, and waste management services, may place additional pressure on local systems, potentially affecting households within the AoI. Communities close to operational facilities may also perceive changes in their quality of life, including heightened exposure to air emissions, noise from aircraft operations, and increased human activity, which could impact social cohesion and the use of communal spaces.

Traffic management plans will be developed in coordination with local authorities to minimize congestion and maintain safe access to residential areas, including designated pedestrian crossings, speed controls, and clear signage. Noise management measures, such as operational scheduling, noise monitoring, and sound barriers where appropriate, will be applied to protect nearby communities. Coordination with utility providers will ensure adequate supply of water, electricity, and waste management services to households within the AoI, and contingency plans will address potential service interruptions. Active community engagement will continue through makhalla leaders, providing a channel for residents to express concerns or report operational issues. Feedback mechanisms, such as grievance procedures, public consultation sessions, and regular community meetings, will be maintained to ensure timely identification and resolution of issues. Additional support may be provided for vulnerable households disproportionately affected by operational changes, including assistance with alternative access routes, social services, or livelihood support, if required. With the planned mitigation and management measures in place, residual impacts on residential communities are expected to be low to moderate. While some minor disruptions related to traffic, noise, and utility access may occur, these are expected to be temporary or easily manageable. The continued engagement with makhalla leadership and community members will facilitate adaptive management, ensuring that operational impacts do not lead to long-term socio-economic harm.

#### 16.5.2.6 Local Infrastructure and Utilities

During the operational phase, the Project's ongoing activities may place additional demand on local infrastructure and utilities, including access roads, internal service roads, electricity distribution networks, water pipelines, and irrigation channels. Maintenance and occasional modifications of these systems could result in temporary disruptions, such as restricted access to households, delays in transport or service delivery, or minor interruptions in electricity or water supply. Increased traffic associated with operational activities, particularly service vehicles, freight movements, and employee commuting, could lead to localized congestion, wear and tear on access roads, and safety concerns for pedestrians and vulnerable road users. Additionally, irrigation channels supporting adjacent agricultural land could be temporarily affected during routine maintenance or operational adjustments, potentially impacting water access for farming activities.

Coordination with local authorities and makhalla representatives will ensure that community concerns are addressed promptly, and communication channels will be maintained to provide real-time updates on maintenance schedules, planned service interruptions, or traffic diversions. Safety measures will be implemented around all operational infrastructure, including clear signage, demarcation of hazardous areas, and protective barriers where required. For irrigation networks, the Project will ensure that temporary modifications do not reduce water flow or access for downstream users, and alternative arrangements or temporary supply measures will be provided where minor interruptions are unavoidable. Staff responsible for infrastructure maintenance will receive training on environmental and social management, stakeholder engagement, and grievance handling to ensure that operational procedures are both safe and socially responsible. With these mitigation measures in place, residual impacts on local infrastructure and utilities are expected to be low. While temporary disruptions in access, electricity, or water supply may occur during maintenance or upgrades, they are anticipated to be short-term and effectively managed.

#### 16.5.2.7 Natural Resources / Water Bodies

During the operational phase, the Project may influence water availability and quality in the Chirchiq River and associated irrigation networks. Potential effects include changes in surface water flow due to abstraction for operational purposes, minor fluctuations in water quality from runoff or operational discharges, and possible sedimentation or contamination from incidental operational activities. Irrigation access for local farmers may be temporarily affected if water intake structures are modified or maintenance activities require partial closures. Additionally, indirect ecological impacts could arise if changes in water availability alter habitats for aquatic species or disrupt local irrigation patterns, potentially affecting crop productivity and livelihoods.

The Project will coordinate closely with local irrigation authorities and farmer associations to maintain equitable and predictable water distribution. Any modifications to irrigation infrastructure will be carefully planned to minimize downtime and ensure continuity of agricultural water supply. Additionally, a Water Management Plan will be developed for the operational phase, covering monitoring protocols, thresholds for intervention, emergency response procedures for spills or contamination events, and periodic reporting to regulatory authorities. Engagement with local communities and stakeholders will continue to be a key component, ensuring that operational water use does not exacerbate existing water stress or access inequalities. With these mitigation measures in place, residual impacts on natural resources and water bodies are expected to be low. Regular monitoring and adaptive management will ensure that any minor fluctuations in water quality or availability are detected early and addressed promptly. Continued stakeholder engagement provides an additional safeguard, ensuring operational practices are responsive to community needs and ecological requirements, maintaining both sustainable water use and the integrity of the Chirchiq River ecosystem.

**Table 16-8 Land Acquisition: Impact Significance, Mitigation & Management Measures and Residual Impacts – Operational**

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Project Affected Households (PAHs) | Low | Project Affected Households (PAHs) | High | Moderate | • Continued implementation of post-resettlement support measures in line with lender's requirement.<br>• Periodic livelihood and income monitoring to verify restoration and improvement of living standards.<br>• Targeted livelihood enhancement support, including vocational training, skills development, and facilitation of access to credit or microfinance schemes.<br>• Ongoing engagement with makhalla committees and district authorities to support access to social services, education, healthcare, and community programs.<br>• Maintenance of an accessible grievance mechanism throughout operation to address unforeseen socio-economic issues promptly.<br>• Adaptive management measures, including temporary financial or in-kind support where monitoring identifies persistent vulnerabilities. | Negligible |
| Economically Displaced Persons | Low to Moderate | Economically Displaced Persons | High | Moderate | • Continuous monitoring of livelihood restoration outcomes for PAPs during operation.<br>• Facilitation of access to Project-related employment opportunities, where feasible, including operations, services, and maintenance activities.<br>• Vocational training aligned with local labour market demand to support livelihood diversification.<br>• Support for small business development and income diversification through advisory services and access to finance.<br>• Maintenance of grievance redress mechanisms to resolve livelihood related concerns in a timely manner. | Negligible |
| Heightened risk for Vulnerable Groups | Low to Moderate | Disproportionate socio-economic impacts on | High | Moderate | • Identification and continuous monitoring of vulnerable households during the operational phase. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | household including low-income, female-headed, elderly, and disability-headed households | | | • Priority access for vulnerable groups to livelihood support, employment opportunities, and training programs.<br>• Coordination with local social welfare authorities to facilitate access to state assistance, healthcare, and education services.<br>• Inclusive engagement processes ensuring meaningful participation of women, elderly persons, and persons with disabilities.<br>• Targeted grievance handling procedures to ensure accessibility and responsiveness for vulnerable groups.<br>• Adaptive mitigation measures where emerging vulnerabilities are identified through monitoring. | |
| Agricultural Land and Livelihood Resources | Low to Moderate | Indirect impacts on agricultural productivity and access to farmland | High | Moderate | • Maintenance of access routes to agricultural land to avoid disruption to farming activities.<br>• Coordination with farmers and makhalla representatives prior to maintenance works affecting irrigation or access.<br>• Protection of irrigation channels and drainage infrastructure during operation and maintenance activities.<br>• Monitoring of indirect agricultural impacts, including changes in access, water availability, or productivity.<br>• Provision of compensatory or alternative livelihood support where residual agricultural impacts are identified. | Negligible |
| Local Infrastructure and Utilities | Low | Temporary disruption to roads, utilities, and irrigation infrastructure | Medium | Moderate | • Development and implementation of an operational infrastructure management plan.<br>• Advance communication with communities regarding planned maintenance, traffic diversions, or service interruptions.<br>• Coordination with utility providers and local authorities to ensure timely restoration of services.<br>• Implementation of safety measures, including signage, barriers, and controlled access during works.<br>• Training of operational staff on environmental and social risk management and grievance handling. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Residential communities within Project AoI | Low to Moderate | Residential Communities within Project AoI | Medium | Moderate | • Implementation of traffic management measures, including speed controls, signage, and pedestrian safety features.<br>• Noise monitoring and operational controls to minimize disturbance to nearby communities.<br>• Coordination with service providers to ensure adequate provision of water, electricity, and waste management.<br>• Ongoing community engagement through makhalla leaders and public consultation forums.<br>• Operation of a grievance mechanism to address community concerns related to traffic, noise, or service access. | Negligible |
| Natural Resources and Water Bodies | Low | Changes in water availability, quality, or access affecting irrigation users | Medium | Moderate | • Implementation of an operational Water Management Plan in line with lender's requirement.<br>• Monitoring of surface water quality and abstraction volumes to ensure compliance with regulatory requirements.<br>• Coordination with irrigation authorities and farmer associations to maintain equitable water distribution.<br>• Careful planning of maintenance activities to minimize disruption to irrigation flows.<br>• Emergency response procedures for accidental spills or contamination events.<br>• Continued stakeholder engagement to address concerns related to water access or quality. | Negligible |

## 16.6 Monitoring

Monitoring of land acquisition activity will be undertaken as required via the management measures outlined above. The following table outlines key indicators.

**Table 16-9 Land Acquisition: Key Monitoring indicators**

| Topic | KPI | Expectation |
|---|---|---|
| Compensation Payment | Percentage of households who vacated their lands | N/A – rolling progress |
| | Percentage of compensation agreements signed | N/A – rolling progress |
| | Total number and monetary value of compensation payments made | N/A – rolling progress |
| | Percentage of affected households who have successfully acquired a new land and moved into a new house | N/A – rolling progress |
| Livelihood Restoration | Number and type of livelihood restoration activities implemented, and number of affected people participating | N/A – rolling progress |
| Resettlement Assistance | Number and type of resettlement assistance activities delivered, and number of affected people benefitting | N/A – rolling progress |
| Grievances | Number of grievances received by gender of complainant, including a summary of key issues | >3 per month |
| | Percentage of grievances closed within 30 days. | 100% |
| Stakeholder Engagement | Number and type of engagements with PAPs conducted | N/A – rolling progress |
| Corrective Actions | Percentage of corrective actions outlined in previous report implemented in this month / quarter | 100% |

# 17.0 Labour and Working Conditions

## 17.1 Applicable Requirements & Standards

### 17.1.1 National Regulations

#### 17.1.1.1 Constitution of the Republic of Uzbekistan (1992, as amended in 2023)

Key constitutional provisions in regard to labour rights include:

- Everyone shall have the right to decent work, to free choice of profession and occupation, favourable working conditions that meet the requirements of safety and hygiene, to fair remuneration for work without any discrimination and not below the established minimum wage, as well as the right to unemployment protection in the manner prescribed by law.
- The minimum wage shall be determined considering the need to ensure a decent standard of living for a person.
- It shall be prohibited to refuse to hire women, dismiss them from work and reduce their wages on the basis of pregnancy or having a child.
- Any forced labour shall be prohibited, except as punishment under the court decision, or in some other Instances specified by law.
- Any form of child labour that poses a threat to the health, safety, morality, mental and physical development of the child, including those that prevent him or her from getting an education, shall be prohibited.
- The amount of pensions, allowances and other types of social welfare established by law, may not be set lower than the officially fixed minimum consumer expenditure.
- Trade unions express and protect the social and economic rights and interests of workers.
- Membership in trade unions is voluntary.

With regards to human rights, the constitution asserts that “democracy in the Republic of Uzbekistan shall be based upon common human principles, according to which the highest values shall be the human being, his life, freedom, honour, dignity and other inalienable rights.”

#### 17.1.1.2 Labour Code of the Republic of Uzbekistan (2022, effective 30 April 2023)

The principal legislation governing labour relations, employment rights, occupational health and safety, working conditions, and social protection in Uzbekistan is the Labour Code of the Republic of Uzbekistan, adopted in October 2022 and effective from 30 April 2023, replacing the previous 1995 Labour Code.

The Labour Code establishes the legal framework governing the relationship between employers and employees and incorporates key principles relating to non-discrimination, equal opportunity, fair remuneration, occupational health and safety, protection of vulnerable workers, working hours, leave entitlements, collective labour relations, and dispute resolution. The Code is generally aligned with Uzbekistan's obligations under the fundamental conventions of the International Labour Organization (ILO).

The principal occupational health and safety (OHS) provisions of the Labour Code require employers to:

- provide safe and healthy working conditions and implement measures to prevent occupational injuries and work-related illnesses;
- undertake workplace risk assessments and implement appropriate preventive and protective measures;
- provide workers with appropriate personal protective equipment (PPE), work clothing and collective protective measures where required;
- ensure workers receive adequate instruction, information and training on occupational health and safety prior to commencing work and throughout employment;
- investigate, record and report occupational accidents and incidents in accordance with applicable legal requirements;
- provide appropriate protection for vulnerable categories of workers, including persons with disabilities, pregnant workers and young workers, where applicable; and
- ensure workers have the right to refuse work where there is an imminent threat to life or health, without suffering adverse consequences.
- Employees are required to comply with occupational health and safety requirements, correctly use PPE and safety equipment provided, participate in mandatory safety training, and promptly report unsafe conditions, accidents or hazardous situations to their employer.

The Labour Code also establishes the legal basis for collective labour relations, including collective bargaining through collective agreements and collective contracts, enabling employers and employees (or their representatives) to regulate employment conditions, occupational health and safety measures, social benefits, and other labour-related matters through negotiated agreements. The Code further establishes procedures for consultation, labour dispute resolution, and protection of workers' rights.

#### 17.1.1.3 Occupational Health and Safety (OHS) legislation

The legislation comprises the Labor Code, the Law on Occupational Health and Safety, the decrees of the President of the Republic of Uzbekistan, Occupational Health and Safety standards, decisions of executive government agencies taken within their competence in the form of decrees, executive orders, regulations, directives, rules, etc.

#### 17.1.1.4 The Law on Occupational Safety in Hazardous Production Facilities (2006)

The Law stipulates the legal, economic and social terms of ensuring safe exploitation of hazardous production facilities, with the aim of building enterprise capacity and preventing accidents.

In addition to the main legislation, the Republic also has national normative documents addressing the issues of occupational health and safety. These include (i) Sanitary Rules and Norms (SanR&N), (ii) State Occupational Safety Standards (GOST, SSBT), (iii) Construction Norms and Rules (CR&N (SNiPs)), (iv) standards of the content of harmful substances (maximum allowable concentrations and levels), and (v) normative methodological documents on individual issues setting forth requirements for occupational safety in hazardous facilities, when manufacturing or applying various products. In addition to state normative documents, various sectors of industry enforce departmental and interdepartmental norms, requirements and rules of occupational safety and health.

The main state bodies responsible for the implementation of OHS policy are:

- Ministry of Employment and Labor Relations of the Republic of Uzbekistan, including the State Labor Inspection under the Ministry with territorial branches distributed throughout the Republic;
- State Committee for Industrial Safety of the Republic of Uzbekistan (Goskomprombez);
- Sanitary and Epidemiological Welfare and Public Health Committee of the Republic of Uzbekistan under the Ministry of Health of the Republic of Uzbekistan.

The Ministry of Employment and Poverty Reduction has an OHS directorate and the State Labor Inspection and its regional branches in the Republic of Karakalpakstan, viloyats (provinces), and the Tashkent city and district directorates and branches on labor, employment and social security. They constitute a single system of supervision and monitoring compliance with OHS requirements for ministries and agencies, institutions, organizations, and industrial and agricultural enterprises, with the exception of hazardous facilities that are under the jurisdiction of the State Inspection on Safety in Industry, Mining and the Housing and Utilities Sector.

#### 17.1.1.5 Other pertinent legislation

The list of other laws and regulations providing for fair and safe working conditions and benefits include the following:

- Law “On the Employment of the Population” No. 642 of 20.10.2020
- Joint Decree of the Ministry of Labour and Social Protection of the Population (No. 7) and the Ministry of Healthcare (No. 13) "On approval of the list of jobs with unfavorable working conditions, where the employment of persons under 18 years is prohibited" registered by the Ministry of Justice of the Republic Uzbekistan, dated July 29 2009, No. 1990
- Decree of the Cabinet No. 133 of 11 March 1997 to approve normative acts necessary for the realization of the Labour Code of the Republic of Uzbekistan.
- Decree of the Cabinet of the Ministers No. 1011 of 22 December 2017 "On Perfection of the Methodology of Definition of Number of People in Need of Job Placement, including the Methodology for Observing Households with Regard to Employment Issues, also for the Development of Balance of Labour Resources, Employment and Job Placement of Population".
- Decree of the Cabinet of the Ministers No. 965 of 5 December 2017 "On the Measures for Further Perfection of the Procedure of Establishment and Reservation of Minimum Number of Job Places for the Job Placement of Persons who are in need of Social Protection and Face Difficulties in Searching Employment and Incapable of Competing in Labour Market with Equal Conditions".
- Decree No. 964 of 5 December 2017 "On the measures for Improvement of the Activity of Self-Government Bodies Aimed at Ensuring Employment, firstly for the Youth and Women".
- The Protection of Women Against Harassment and Violence Act (2019).
- The National Human Rights Strategy was approved by Presidential Decree on 22 June 2020. No. PD-6012.
- Law on guaranteeing equal rights and opportunities for women and men (2019).
- The Law on Mediation (2018).
- Law on Public Control (2018).
- Law on Administrative Procedures (2018)

#### 17.1.1.6 Human Rights

As a member of the United Nations, Uzbekistan supports and implements all the main international instruments of the United Nations relating to the protection of human rights and freedoms, including UN Universal Declaration of Human Rights, Human Rights Council Resolution No. 30/15 on human rights and preventing and countering violent extremism, Convention on the Elimination of all Forms of Discrimination against Women among others.

Uzbekistan's State Policy on human rights is aimed at preventing violations or any restriction on human rights and freedoms and at establishing the necessary organizational, legal, social, economic, spiritual and moral foundations for the protection of human rights.

In 1995-1996, two independent and effective institutions for the protection of human rights were established in Uzbekistan: The Human Rights Commissioner (Ombudsman) of the Oliy Majlis of the Republic of Uzbekistan and the National Centre for Human Rights. In subsequent years, special structures for the protection of human rights were established in various ministries and departments of the Republic of Uzbekistan.

#### 17.1.1.7 The Protection of Women against Harassment and Violence Act (2019)

The Act defines the various forms of violence - sexual, physical, economic, psychological against women. Protection from harassment and violence is defined as a system of urgent measures of economic, social, legal, organizational, psychological and other nature in order to eliminate the danger to women's life and health, to ensure their safety and to prevent repeated illegal actions against them.

Other relevant legislations include:

- The National Human Rights Strategy was approved by Presidential Decree on 22 June 2020. No. PD-6012;
- Law on guaranteeing equal rights and opportunities for women and men (2019);
- The Law on Mediation (2018);
- Law on Public Control (2018); and
- Law on Administrative Procedures (2018)

### 17.1.2 Lender Requirements

**IFC**

The following applicable IFC Performance Standards aim to identify and ensure that social and economic impacts of a project are addressed in the relevant areas, in particular:

- Performance Standard 2: Labour and Working Conditions;

IFC Performance Standard 2 relates to Labour and Working Conditions, in accordance with the Standard there is a requirement to align with the following conventions:

- ILO Convention 29 on Forced Labor;
- ILO Convention 87 on Freedom of Association and Protection of the Right to Organize;
- ILO Convention 98 on the Right to Organise and Collective Bargaining;
- ILO Convention 100 on Equal Remuneration;
- ILO Convention 105 on the Abolition of Forced Labor;
- ILO Convention 111 on Discrimination (Employment and Occupation);
- ILO Convention 138 on Minimum Age (of Employment) (Minimum age specified as 15 years);
- ILO Convention 182 on the Worst Forms of Child Labor;
- UN Convention on the Rights of the Child, Article 32.1; and
- UN Convention on the Protection of the Rights of all Migrant Workers and Members of their Families.

Regarding human rights:

- In line with EP IV requirements, the United Nations Human Rights Guiding Principles (HRGP) apply to the Project. HRGP II on “The corporate responsibility to respect human rights” recognises that it is the responsibility of businesses and corporations to respect human rights. It is a global standard of expected conduct for all business enterprises wherever they operate. It exists independently of a States’ ability and/or willingness to fulfil their human rights obligations and does not diminish those obligations.

IFC Guidance on Gender Based Violence and Harassment (GBVH) in the Construction Sector:

The assessment, prevention, monitoring and response measures in regard to GBVH should be underpinned by the following principles:

- *Survivor Centred:* The rights of GBVH survivors need to be consistently prioritised and used as the starting point for all decisions on efforts to assess, prevent, monitor and respond to GBVH.
- *Safe:* Survivors, witnesses and those who report and seek to address GBVH can be at risk of retaliation, including threatening and violent behaviour, often from those who do not like their position of power being challenged. Companies should prioritise the safety of those who have experienced, witnessed and reported GBVH.
- *Context specific:* All measures need to be rooted in a thorough understanding of the local context. Investors and companies should understand the legal and social context and identify the support mechanisms that are in place.
- *Collaborative:* Companies should seek inputs from a range of internal and external stakeholders to increase the likelihood of broader buy-in and make GBVH prevention more effective.
- *Inclusive:* Companies should recognise the heightened risks of GBVH faced by certain groups who are subject to discrimination and marginalisation. High risk groups often include people with disabilities, single parents, migrants and ethnic minorities and sexual and gender minorities. The system should also account for illiterate or non-literate people who may not be able to access written information on GBVH reporting mechanisms.
- *Integrated:* Processes, efforts to assess, prevent, monitor and respond to GBVH needs to be integrated as much as possible into existing processes and management systems, such as occupational health safety, security management systems, environmental and social management systems (ESMS) and human resources (HR) policies and procedures.
- *Non-discriminatory:* All survivors need to be listened to and treated equally and promote diversity in the work place.
- *Well-informed:* Companies should draw on relevant expertise when developing prevention and response measures. The grievance mechanism and investigation procedures should be set up to ensure they are appropriate, relevant and safe in the local context.

According to the guidance, the benefits of addressing GBVH include:

- Improves workers' physical and emotional wellbeing and strengthens occupational health and safety.
- Avoids reputational damage, financial risks and legal liabilities for companies, investors and construction contractors.
- Builds relationships and social license to operate in communities. This can result from regular dialogue to understand and track project GBVH risks as well as the effective use of measures to prevent and respond to GBVH.
- Broadens the pool of potential workers that companies can draw upon, including women workers from nearby communities because of lower perceived risk of GBVH.

**EBRD**

ESR2 is applicable to Labour and Working Conditions and has the following key objectives:

- Respect and protect the fundamental principles and rights of workers;
- Promote the decent work agenda, including fair treatment, non-discrimination and equal opportunities of workers;
- Establish, maintain and improve a sound worker-management relationship;
- Promote compliance with any collective agreements to which the client is a party, national labour and employment laws;

- Protect and promote the safety and health of workers, especially by promoting safe and healthy working conditions; and
- Prevent the use of forced labour and child labour (as defined by the ILO) as it relates to project activities.

Concerning dedicated accommodation, compliance is required with:

- IFC & EBRD Workers Accommodation: Processes and Standards (2009).

In regard to human rights:

- According to EBRD's Environmental and Social Policy, EBRD is committed to the respect of human rights in the Project they finance. EBRD is also guided by the International Bill of Human Rights and the eight core conventions of the International Labour Organization.

## 17.2 Baseline Conditions

### 17.2.1 Construction Labour in Uzbekistan

Uzbekistan has achieved steady economic development over the past few decades, with the expansion of private sector businesses and progressive policy reforms geared towards the country's transition to a market-based economy. The country's labour force has grown at a rate of 350,000 to 370,000 people per year. Moreover, work and education draw many rural residents to the cities, especially Tashkent and Andijan. Daily migration has been reported to influence the employment rate and culture of rural residents, besides improving the ties between rural and urban communities.

The construction industry is amongst the leading labour-intensive contributors to the national economy, other such sectors being agriculture and manufacturing. In addition, the cross-cutting service sector holds the most potential for job creation. The construction sector, along with agriculture and industry employ about 60% of the labour force accounting for Small to Medium Enterprises (SMEs), with the remainder of labour engaged in the services sector. The leading demographics for informal labour within the country's construction sector and other industries are males, rural residents, and workers with relatively low educational attainment. With regards to the gender distribution, construction represents the second most dominant sector for male recruitment, with 25% of the national male labour employed in construction. Conversely, only 0.6% of the national female labour have been shown to hold occupations within the construction sector (Anderson et al., 2020).

### 17.2.2 Employment, Migration, and Livelihood Dynamics

Uzbekistan's labour market and migration patterns reflect ongoing structural changes in the economy, shaped by internal employment shifts and significant external mobility of the workforce. Recent official labour market monitoring indicates growth in job vacancies across key economic sectors, with trade, food services, and manufacturing accounting for a substantial share of advertised positions. During 2025, the number of vacancies posted by enterprises increased relative to the previous year, accompanied by rising nominal and real wages, with the average monthly wage exceeding UZS 6 million in the third quarter. Remittance inflows from migrant workers have also exhibited sharp growth, underscoring the continued importance of external earnings to household incomes[92].

Employment patterns in Uzbekistan show continued formal and informal diversification. While unemployment rates have gradually declined, a large number of workers remain in informal or self-employment roles, particularly in agriculture, retail, and personal services, and self-employment has been rising. Job creation in urban centres and emerging service industries

[92] https://cbu.uz/en/press_center/releases/3218658/

supports domestic employment, yet persistent seasonal fluctuations and skill mismatches limit opportunities for many labour market entrants.

Uzbekistan is a significant source of labour migration in Central Asia. Recent estimates show that between January and September 2025, more than 2.3 million Uzbek citizens departed the country for work abroad, a 4 % increase compared to the same period in the previous year. The overwhelming majority of these labour migrants (over 90 %) were concentrated in a small number of destination states, though diversification of migration routes, for example to countries in the European Union, East Asia, and the Middle East is increasing as bilateral employment agreements expand. Large-scale labour migration has mixed implications for livelihoods in Uzbekistan. On one hand, external earnings from migrants boost household incomes, provide consumption smoothing, and contribute to socio-economic stability. On the other hand, high out-migration may exacerbate domestic skill shortages and constrain the availability of skilled workers for critical economic sectors, particularly where vocational and technical skills are in demand. This dynamic has implications for local employment strategies and efforts to balance external labour mobility with domestic labour market needs.

Focus Group Discussions (FGDs) conducted in Beruniy makhalla and Surum makhalla of Kuychirchik district highlight persistent livelihood vulnerabilities shaped by out-migration, informal employment, and limited local economic opportunities.

In Beruniy makhalla, participants reported significant out-migration, primarily of able-bodied men to Korea and Russia, where they are engaged mainly in construction and manual labour. While remittances from migrant workers constitute a critical source of household income, employment is described as unstable and seasonal. Winter return periods, when overseas work opportunities decline, were noted to exacerbate household financial stress. The FGD did not identify the presence of inbound seasonal or migrant workers influencing local social or economic dynamics.

Across both mahallas, FGDs identified multiple barriers to securing stable local employment, including:

- Limited vocational and technical skills aligned with market demand
- Caregiving responsibilities, particularly affecting women
- Transport constraints restricting access to jobs outside the mahalla
- Low digital literacy, which limits access to emerging opportunities such as e-auctions and online job platforms

Community members described prevailing employment as low-paid, informal, and unpredictable, often lacking written contracts, social protection, or labour safeguards. Women and primary caregivers face compounded challenges due to domestic responsibilities and restricted mobility, further narrowing their employment options.

In Surum makhalla, livelihoods are characterised by daily commuting and short-term labour migration to nearby cities and urban centres. Men are typically engaged in construction and other forms of casual labour, while women participate in catering, cleaning, and service activities as one-day or temporary workers. Although this mobility provides essential cash income, it remains highly contingent on fluctuating external demand and offers limited income security.

FGD participants also highlighted social implications of migration and commuting patterns. Extended absences of working-age adults increase reliance on extended family networks and neighbours for childcare and elderly support. Additionally, ongoing uncertainty regarding land tenure and property rights discourages investment in local businesses or agricultural expansion, reinforcing dependence on external employment.

While FGDs did not identify current impacts from incoming migrants or seasonal workers, participants noted that, based on broader district-level experience, any future influx of project-related workers could place pressure on rental housing, services, and local infrastructure if

not proactively managed. These findings underscore existing livelihood fragilities and provide important context for assessing project-related labour and community interactions during subsequent project phases.

### 17.2.3 Employment Practices and Working Conditions

Publicly available information on labour and working conditions across different economic sectors in Uzbekistan remains limited. Despite the paucity of publicly available information in this regard, a review of literature offering highlights on labour conditions within the country's cotton production sector was carried out.

Cotton production in Uzbekistan continues to rank among the most exploitative enterprises, globally. About 90% of the countries cotton plantations utilize manual labour for cotton picking, and the majority of these estates operate with forced labour. Cotton harvesting is performed in harsh climatic conditions, with exposure to hazardous agrochemicals such as pesticides, herbicides and defoliants resulting from a widespread inadequacy of PPE. Employed labourers are made to work for long working hours with little to no weekly and monthly time off. During the harvesting season, labourers are accommodated on on-farm facilities, most of which lack essential services such as water supply, air conditioning, food provisioning, communication and medical services (Association of Human Rights in Central Asia, 2010).

Many employees had official part-time or low-income jobs and many continued to work informally. In April 2021, the International Monetary Fund (IMF) estimated the informal sector employed approximately 40% of the workforce and produced one-third of the GDP. The government worked to shift more of the economy from informal to the formal economy and to provide labour and social protections to those working informally. Despite an increase in the number of labour inspectors in prior years, the Ministry of Employment and Labour Relations lacked adequate staff to enforce compliance and prevent many violations in the informal sector. The most common labour violations were working without contracts, receiving lower than publicly announced payments, delayed payments, and substandard sanitary or hygienic working conditions.

### 17.2.4 Forced Labour

According to the latest Trafficking in Persons Report issued by the United States Department of State, Uzbekistan has not yet attained full compliance with minimum standards for the elimination of human trafficking, although significant progress towards these standards has been realised. In 2019, there were 95 reported victims of human trafficking, 89 of whom were victims of sexual exploitation. While most of the victims were exploited abroad, 15 endured exploitations within the country. The report highlights that Uzbekistan's efforts include steps to end to the systematic mobilisation of students, teachers, and health care personnel for the annual cotton harvest, and granting international, third-party observers' unimpeded access for monitoring purposes. According to 2017 data from Uzbek Ministry of Internal Affairs, out of 501 victims of human trafficking, 303 were women, 198 were men and 61 children. In 2018, the victims included 147 women, 103 men and 41 children. In 2019, the victims of human trafficking included 87 women, 3 men and 35 children.

In July 2019, a Decree of the President of the Republic of Uzbekistan titled Additional Measures to Further Improve the System of Combating Trafficking in Persons and Forced Labour, entered into force. It transformed the Interdepartmental Commission of the Republic for Combating Human Trafficking into a National Commission under the guidance of the President of the Senate. The Commission comprises two sub-committees chaired by the Ministry of Internal Affairs and the Ministry of Employment respectively. Regional commissions were created in each of the Country's regions and a national rapporteur was eventually appointed.

In August 2020, the country's 2008 law on human trafficking was amended as new concepts, preventive measures, and a procedure to identify victims of human trafficking (including minors and their rights), were introduced. While listing the main policy lines in this sector, the law provides a specific definition of the status of the National and Territorial Commissions for combating human trafficking and forced labour, as well as the powers of the Council of Ministers. The relevant government agencies include the General Prosecutor's Office and the Ministry of Employment and Labour Relations. A new chapter on human trafficking prevention has been introduced in the legislation, with measures ranging from ongoing monitoring and awareness raising campaigns on dangerous situations to the development and implementation of educational programs in public and private educational establishments. The Ministry of Internal Affairs will create a unified database for human trafficking crimes, with information on traffickers, victims and the various types of exploitation. The new law introduces a two-stage procedure to identify the victims of human trafficking. When individuals are granted the status of victim of human trafficking they are entitled to rehabilitation and social integration programs, according to the outcome of the final investigation carried out by the Territorial Committee (United States Department of State, 2021).

### 17.2.5 Child Labour

In 2019, Uzbekistan achieved appreciable progress in action towards the elimination of the worst forms of child labour. The government took active measures to prevent the use of child labour in the cotton harvest, including by introducing criminal penalties for repeat violations of hazardous work prohibitions, doubling the number of labour inspectors, and conducting extensive awareness-raising on child labour laws and penalties for violations. The government also established a new National Commission on Combating Trafficking in Persons and Forced Labour and adopted a new roadmap to combat trafficking in persons and forced labour. However, children in Uzbekistan engage in the worst forms of child labour, including in commercial sexual exploitation. Although the government made meaningful efforts in all relevant areas, laws prohibiting the commercial sexual exploitation of children do not meet international standards. Uzbekistan also has not carried out a national child labour survey to determine the prevalence of child labour in sectors other than cotton production.

Surveys conducted by UNESCO and ILO have shown that about 5% of children in Uzbekistan are engaged in work during studies, and 4.3% are fully devoted to employment. Whilst the surveys have indicated that children below the age of 18 years are chiefly employed in the agricultural and service industries, children were also shown to engage in sex trafficking transnationally, and also internally in brothels, clubs, and private residences. Children in institutions were also shown to be vulnerable to sex trafficking. The table below provides an overview of the sectors and occupations reported to employ minors in Uzbekistan.

**Table 17-1 Sectors and Work Streams Employing Child Labour in Uzbekistan**

| Sector/ Category of Labour | Activity |
|---|---|
| Agriculture | - Cultivating silk cocoons;<br>- Preparing land for crop planting. |
| Services | - Vending;<br>- Car washing;<br>- Collection of scrap metals;<br>- Refurbishing school grounds and facilities;<br>- Vending in markets. |
| Categorical Worst Forms of Child Labour | - Commercial sexual exploitation, sometimes as a result of human trafficking;<br>- Forced labour in cultivating silk cocoons; |

| Sector/ Category of Labour | Activity |
|---|---|
| | - Forced labour in construction, non-cotton agriculture, and cleaning parks, streets, and buildings. |

With regards to child labour in agriculture and the cotton cultivation sub-sector in particular, the Government of Uzbekistan abolished the oppressive quota system that governed cotton production in some parts of Uzbekistan in 2020. Under the pre-existing cotton production quota system, regional and local officials were mandated to mobilise sufficient labour to meet production targets assigned to farmers, and child workers were recruited with onerous working conditions. Vestiges of child labour in cotton farming are reported to employ children in a supporting capacity, whereby older children assist in harvesting to supplement household income (United States Embassy in Uzbekistan, 2022).

The following table provides a summary of key mechanisms for the Government's coordination of efforts towards the eradication of child labour in Uzbekistan.

**Table 17-2 Mechanisms for Governmental Coordination of Child Labour Eradication Requirements Set out in Uzbekistan's Legal Framework**

| Sector/ Category of Labour | Activity |
|---|---|
| National Commission on Combating Trafficking in Persons and Forced Labour (National Commission) | - Coordinates state and local entities' efforts to combat trafficking in persons and forced labour;<br>- Analyses and monitors efficacy of government programs to address trafficking in persons and forced labour;<br>- Organises international cooperation on combating human trafficking and forced labour;<br>- Provides legal and policy recommendations for improvement of government efforts in these areas.<br><br>Chaired by the National Rapporteur on Combating Trafficking in Persons and Forced Labour. Comprises the two sub-commissions on combating human trafficking and on forced labour, respectively. The Minister of Internal Affairs heads the Sub-Commission on Combating Trafficking in Persons and the Minister of Labour heads the Sub-Commission on Combating Forced Labour. In 2019, the National Commission drafted and adopted a roadmap to combat trafficking in persons and forced labour, and roadmaps for the cotton harvest, a national plan for work with international organizations, and a media plan. |
| National Rapporteur on Combating Trafficking in Persons and Forced Labour (National Rapporteur) | Chairs the National Commission on Combating Trafficking in Persons and Forced Labour.<br>- Reports annually to the President on trafficking in persons and forced labor issues, government efforts to punish perpetrators, and services for victims of human trafficking and forced labor crimes.<br>- Conducts public awareness-raising activities related to human trafficking and forced labor. (35) In 2019, the National Rapporteur convened the National Commission monthly. |
| Local Commissions for Combating Human Trafficking and Forced Labour (Local Commissions) | - Ensure timely and rigorous implementation of all laws and regulations, including those issued by the National Commission, related to trafficking in persons and forced labour.<br>Local Commissions mirror the structure of the National Commission, with sub-commissions on trafficking in persons and on forced labor, respectively. Local Commissions are chaired by the |

| Sector/ Category of Labour | Activity |
|---|---|
| | regional hokim (governor) and provide monthly reports to the National Commission. |

Focus Group Discussions (FGDs) conducted in selected communities within the Project Area of Influence provide insights into child and forced labor practices. In Yangiyul Makhalla, Urtachirchik District, participants reported no instances of child or forced labor, with children viewed as learners whose education is prioritized. Similarly, in Sergeli Makhalla, Kuychirchik District, households reported no child labor or forced labor cases, emphasizing that children are considered future contributors rather than current labor sources, and school attendance remains a priority even in the multilingual school environment. In contrast, Kushek Makhalla, Kuychirchik District, revealed the widespread involvement of children in household chores and livestock farming. Children often undertake unpaid labor, which leads to missed school hours and reduced educational achievement. These practices are socially normalized, and formal mechanisms to protect children's rights are largely absent. Additionally, women who receive preferential loans for livestock frequently delegate the care of animals to their children, increasing the labor burden on minors. Overall, the FGDs indicate significant variation across communities, with some showing strong educational prioritization and low incidence of child labor, while others exhibit normalized child labor practices that may adversely affect schooling and children's rights.

Overall, the socio-economic surveys and FGDs did not identify or verify evidence of systematic child labour associated with existing cotton production within the Project area. The findings reflect stakeholder perceptions that children's participation in agricultural or household work may be more common in some communities than others and, in certain cases, could influence school attendance. These findings were considered as contextual social information rather than confirmation of child labour practices.

### 17.2.6 Occupational Health and Safety

The most common violations committed by private sector employers were violations of wage, overtime, and occupational health and safety standards. Although regulations provide standards for workplace safety, workers reportedly worked without necessary protective clothing and equipment at some hazardous job sites. More specific information was not available on sectors in which occupational safety violations were common, as well as on specific groups of workers who worked in dangerous conditions or without needed safety equipment. In March 2020 the country joined the Commonwealth of Independent States' Interstate Council for Industrial Safety to improve its industry safety standards (United States Department of State, 2021).

## 17.3 Scoping

The ESIA addresses applicable requirements and potential risks related to labour and working conditions and it also covers requirements for GBV/SEA/SH-related mechanisms and action plans applicable to both the construction and operational phases. Compliance requirements to meet lender guidelines are included. The report identifies mitigation and management measures designed to minimize and appropriately manage these risks across the project workforce and key supply chains.

## 17.4 Area of Influence and Receptors

### 17.4.1 Area of Influence

The Area of Influence (AoI) for Labour and Working Conditions is defined as the spatial and organisational extent within which Project-related labour management decisions, employment

practices, and worker welfare arrangements may be established and influenced prior to the commencement of physical construction works.

The AoI includes:

- The proposed Project site, covering approximately 1,300 hectares designated for the development of the *project*, located within the Urta-Chirchik and Kuyi-Chirchik districts of Tashkent Province.
- Off-site offices and facilities associated with Project preparation, including the Sponsors' project management offices and the engineering, procurement, and construction (EPC) planning offices of Larsen & Toubro for landside works, as well as those of the future airside EPC contractor once appointed.
- Labour recruitment catchment areas, encompassing local communities in nearby villages, including Yangitosh, and wider regional or national labour markets from which workers may be sourced during the construction phase.
- Potential locations for worker accommodation and support facilities, which are under consideration at this stage but have not yet been identified or confirmed, including any off-site housing, camps, or leased facilities that may be required during construction. These locations will be subject to future site selection, regulatory approval, and assessment once defined.
- Transport corridors and logistics routes anticipated to be used for the mobilisation of labour and movement of personnel to and from the Project site once construction commences.

### 17.4.2 Receptors

The following table provides an overview of E&S impact receptors in the context of potential impacts relating to labour and working conditions.

**Table 17-3 E&S Impact Receptors – Labour and Working Conditions**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Prospective construction workers (skilled, semi-skilled and unskilled) | **Medium** | Employment terms, wages, working hours, occupational health and safety (OHS) provisions, and access to grievance mechanisms will be defined during pre-construction. Decisions taken at this stage will directly influence worker welfare during construction. |
| Local job seekers from nearby villages (including Yangitosh) | **Medium** | Local communities may have expectations regarding employment opportunities. Sensitivity arises from the risk of exclusion, informal recruitment practices, or unequal access to jobs if transparent local hiring procedures are not established early. |
| Migrant and non-local workers | **High** | Migrant workers are typically more vulnerable due to reliance on employers for contracts, accommodation, transport, and information. Pre-construction recruitment policies and labour standards are critical to prevent exploitation and ensure fair treatment. |
| Workers employed through contractors and subcontractors | **High** | Labour conditions may vary between contractors. Without clear contractual labour requirements established at pre-construction, risks may arise related to inconsistent wages, OHS standards, and worker rights. |

| Receptor | Sensitivity | Justification |
|---|---|---|
| Support and ancillary service workers (security, catering, transport, cleaning) | **Medium** | These workers are often employed through third-party service providers and may face higher risks related to job security, working hours, and access to grievance mechanisms if labour requirements are not clearly specified. |
| Vulnerable worker groups (e.g. young workers, low-skilled labour, temporary workers) | **High** | Vulnerable groups may have limited bargaining power and awareness of rights and policies will play a key role in ensuring protection against discrimination, unsafe work conditions, and unfair employment practices. |

## 17.5 Impacts, Mitigation, Management & Residual Impacts

### 17.5.1 Construction Phase

#### 17.5.1.1 Occupational Health and Safety

Construction of the Project will involve a range of high-risk activities typical of large-scale aviation infrastructure developments. These activities include large-scale earthworks and excavation, operation of heavy plant and machinery, lifting operations, temporary works, structural works, concrete and steel installation, electrical and mechanical installation, fuel and chemical handling, vehicle movements, works at height, confined space entry, hot works, and commissioning activities.

The scale and complexity of the Project, including a peak construction workforce of approximately 5,000 workers and the anticipated involvement of multiple EPC contractors, subcontractors, and specialist suppliers, presents a range of occupational health and safety risks. These risks may be increased by the interaction of different contractors operating concurrently, varying levels of workforce competency, language barriers among workers, differences in contractor safety practices, and the need to manage complex construction interfaces.

Key occupational health and safety risks anticipated during construction include:

- Workplace injuries associated with high-risk construction activities, including falls from height, struck-by incidents, crushing injuries, and injuries associated with lifting operations and heavy machinery;
- Traffic and vehicle-related incidents, including interaction between construction vehicles, heavy equipment, and workers within active construction areas;
- Exposure to hazardous substances, including fuels, lubricants, solvents, paints, concrete additives, and other construction chemicals;
- Electrical hazards associated with temporary power systems, electrical installations, testing, and commissioning activities;
- Fire and explosion risks associated with fuel storage, hot works, temporary facilities, and construction activities;
- Occupational health risks, including exposure to dust, noise, vibration, heat stress, ergonomic hazards, and fatigue;
- Emergency preparedness risks, including the ability to respond effectively to fire, medical emergencies, severe weather events, and major incidents across a large construction site.

The Project will be implemented within the context of Uzbekistan's regulatory framework for occupational health and safety. While national legislation establishes requirements for workplace safety, emergency preparedness, and worker protection, challenges remain within the construction sector regarding consistent implementation, contractor oversight, hazard identification, and enforcement of safety requirements. These challenges reinforce the need for the Project to apply internationally recognised occupational health and safety standards, including the lender requirements and relevant industry good practice.

The Project Company and EPC contractors will be required to establish a comprehensive Occupational Health and Safety Management System (OHSMS) consistent with IFC PS2 and international good practice. The OHSMS will apply across all contractors and subcontractors and will include, at minimum:

- Development and implementation of a Construction Occupational Health and Safety Management Plan (COHSMP);
- Preparation of task-specific risk assessments and method statements for high-risk activities;
- Contractor and subcontractor OHS prequalification and ongoing performance monitoring;
- Clear definition of OHS responsibilities between the Project Company, EPC contractors, subcontractors, and specialist contractors;
- Permit-to-work systems for high-risk activities, including work at height, lifting operations, confined spaces, electrical works, and hot works;
- Provision, availability, and enforcement of appropriate PPE;
- Worker induction, competency assessment, toolbox talks, and ongoing safety training;
- Traffic management arrangements, including segregation of pedestrians and vehicles;
- Occupational health monitoring, including management of heat stress, fatigue, dust, noise, and vibration exposure;
- Provision of first aid facilities, trained first aiders, and emergency medical response arrangements;
- Development and testing of emergency preparedness and response procedures, including fire, medical emergencies, chemical spills, and major incidents;
- Incident notification, investigation, root cause analysis, and corrective action tracking;
- Regular inspections, audits, and performance reporting, including contractor OHS performance indicators.

Given the scale of the Project, particular attention will be required to ensure consistent implementation of OHS requirements across all contractors and subcontractors. The EPC contractors will remain responsible for ensuring that subcontractors comply with the Project OHS requirements and maintain equivalent standards of worker protection.

Occupational health and safety risks represent a continuous management risk throughout construction rather than a conventional environmental or social impact with a defined spatial footprint and duration. However, given the scale of construction activities, workforce size, and the potential severity of consequences associated with serious accidents or fatalities, the inherent OHS risk is considered High prior to mitigation.

Following implementation of the proposed mitigation and management measures, including application of the Project OHSMS, contractor controls, emergency preparedness arrangements, and ongoing monitoring, the likelihood of significant incidents is expected to be

substantially reduced. Nevertheless, residual OHS risks cannot be fully eliminated due to the inherent hazards associated with large-scale construction activities.

Therefore, the residual impact significance is assessed as Minor, subject to effective implementation and monitoring of the OHS management framework.

Additional information on the geotechnical conditions and soil management measures relevant to these activities is provided in Chapter 10 (Topography, Geology, Soil and Groundwater).

#### 17.5.1.2 Right to Work, Forced Labour, Right to Adequate Standard of Living, Non-Discrimination

Uzbekistan's labour legislation provides a legal framework for the protection of workers' rights, including the right to work, fair employment conditions, and protection against forced labour and discrimination. While legislative alignment with international standards has improved significantly in recent years, enforcement challenges may still arise, particularly within labour-intensive sectors such as construction.

The Project will engage a large and diverse workforce comprising direct workers, contractor and subcontractor workers, and, where relevant, primary supply chain workers. This creates a foreseeable risk of labour rights violations if recruitment, contracting, and workforce management practices are not effectively controlled. Potential risks include informal employment arrangements, absence of written contracts, delayed or insufficient wage payments, excessive working hours, discrimination, unequal treatment across contractors, and inadequate access to grievance mechanisms.

Labour exploitation, including coercive recruitment practices, excessive working hours, poor living and working conditions, and restrictions on workers' rights, has been observed on construction projects globally and cannot be excluded as a potential risk, particularly for subcontracted, migrant, and low-skilled workers. These risks may be heightened where workers have limited bargaining power, insufficient awareness of their rights, or dependence on labour intermediaries.

To manage these risks, the Project Company will develop and implement a Labour Management Plan (LMP) in accordance with applicable national labour legislation, IFC Performance Standard 2 (Labour and Working Conditions), EBRD Performance Requirement 2 (Labour and Working Conditions), and other applicable lender requirements. The LMP will apply to all categories of project workers, including direct workers, contractor and subcontractor workers, and, where relevant, primary supply chain workers.

The LMP will establish requirements and procedures relating to: (i) terms and conditions of employment; (ii) recruitment and hiring practices; (iii) prohibition of forced labour, child labour, and human trafficking; (iv) non-discrimination and equal opportunity; (v) wages, benefits, working hours, overtime, and leave entitlements; (vi) workers' accommodation, where provided; (vii) occupational health and safety management; (viii) worker welfare provisions; (ix) worker grievance mechanisms; (x) freedom of association and collective bargaining, consistent with national law and lender requirements; (xi) contractor and subcontractor labour management and monitoring; and (xii) labour and human rights due diligence within the primary supply chain, where applicable.

All personnel will be engaged under written employment contracts that clearly define their terms and conditions of employment, including roles and responsibilities, remuneration, working hours, benefits, leave entitlements, disciplinary procedures, and access to grievance mechanisms. Recruitment processes will be conducted on a voluntary, transparent, and non-discriminatory basis, with strict prohibition on recruitment fees, coercion, forced labour, and any other form of labour exploitation. Contractors and subcontractors will be required to comply with the provisions of the LMP, applicable national labour legislation, and good international practice standards through contractual obligations and ongoing performance monitoring.

Worker welfare and human rights risks will be proactively managed through im-plementation of the lmp, robust contractual controls, regular audits and inspec-tions, workforce engagement, effective grievance management, and corrective ac-tion processes throughout the construction period. These measures will reduce the likelihood of labour-related non-compliance and adverse social impacts while promoting fair, safe, and equitable working conditions for all project workers.

#### 17.5.1.3 Child Labour

Employment of children below the legal working age is prohibited under Uzbekistan's Labour Code. In line with national legislation and international standards, the Project will apply a zero-tolerance approach to child labour.

Young persons aged 16–17 years may only be employed for light, non-hazardous work in accordance with national law, provided such work does not interfere with education or pose risks to health, safety, or moral development. In line with international lender requirements, workers under the age of 18 will not be engaged in hazardous construction activities.

Age verification procedures will be implemented during recruitment. Where child labour is identified within contractor or supply chain workforces, corrective actions will be undertaken in accordance with national law and international standards, ensuring that remediation does not result in further harm or vulnerability to the affected individual.

#### 17.5.1.4 Worker Accommodation and Welfare Facilities

During the construction phase, the Project may require temporary worker accommodation, either on or off the airport site. While the final locations of these facilities have not yet been determined, all accommodation and welfare provisions will be developed and managed in ac-cordance with national legal requirements and internationally recognised good practice, in-cluding IFC Performance Standard 2, ILO guidance, and the IFC & EBRD Workers' Accom-modation: Processes and Standards (2009).

Accommodation will be designed and operated to ensure adequate living space, sanitation, potable water, ventilation, security, lighting, and overall habitability, in line with these stand-ards. Separate and appropriate facilities will be provided for male and female workers, includ-ing dormitories, sanitation facilities, and recreational areas, to address gender-related safety, dignity, and privacy considerations. Access to medical support, including first aid and clear referral pathways to local healthcare services, will be available to all workers.

Regular inspections, monitoring, and corrective action procedures will be implemented to en-sure ongoing compliance with the above standards and to promptly address any deficiencies in accommodation and welfare conditions. With the implementation of these measures aligned with IFC/EBRD (2009) standards, risks associated with inadequate accommodation including overcrowding, poor hygiene, and related health, safety, and gender-based vulnerabilities are expected to be effectively mitigated, and residual impacts are anticipated to be low.

#### 17.5.1.5 Workforce Management and Worker Influx

The construction of the project is expected to involve a substantial workforce of approximately 5,000 personnel, including both local and non-local workers engaged across multiple EPC contractors and subcontractors. The mobilisation of this large and diverse workforce may re-sult in social, economic, and labour-management pressures if not carefully managed. Influx of workers can place additional demand on local services, infrastructure, and resources, includ-ing housing, food supply, and transport networks. The presence of non-local and migrant work-ers may also increase the potential for informal employment practices, inequitable recruitment, and cultural or social tensions with neighbouring communities. To mitigate these risks, the Project will implement phased workforce mobilisation and demobilisation, coordinated through

the Project management offices, and will establish clear recruitment procedures that are transparent, fair, and prioritise local employment opportunities where possible. Orientation and cultural awareness programmes will be provided to non-local workers to familiarise them with local norms, expectations, and Project codes of conduct. Through active monitoring of workforce numbers, composition, and movements, the Project will ensure that potential impacts associated with workforce influx are effectively anticipated and managed. With these measures in place, residual impacts from workforce mobilisation and worker influx are expected to be low to moderate.

#### 17.5.1.6 Provision of Inadequate Accommodation Facilities

The EPC Contractor will provide accommodation facilities to the Project workforce, and it is noted that there will be requirements for workers to be accommodated in alignment with the benchmarks outlined in the IFC & EBRD Workers Accommodation: Processes & Standards (2009).

There is a potential risk that accommodation facilities may not meet the aforementioned guidelines. Key risk areas are likely to be during the commencement of construction where accommodation camps may not be fully established, and all amenities may not be in place at the camp(s). This has the potential to include a lack of relevant facilities, welfare provisions on-site such as clean drinking water, hygienic and ample toilet facilities, hand basins (with soaps/hand wash), temporary rest areas, food and other amenities necessary to the workers.

In the event that there are female workers, there is a potential risk that accommodation facilities may not fully meet requirements for separate and appropriate living and welfare arrangements.

#### 17.5.1.7 Wages, Working Hours, Right to Health & Rest and Job Security

During the construction phase, workers may be exposed to labour related risks such as excessive working hours, unpaid or involuntary overtime, delayed wage payments, or unclear employment conditions if labour management arrangements are inadequately implemented. Such practices can adversely affect workers' health, well-being, morale, and productivity, and may also give rise to grievances or labour disputes. National labour legislation establishes clear requirements regarding maximum working hours, rest periods, overtime compensation, and timely payment of wages, which are intended to safeguard workers' rights and ensure fair and safe working conditions.

In line with these requirements, the Project and its contractors will implement robust labour management procedures to ensure that all working hours remain within legally prescribed limits, with any overtime undertaken on a voluntary basis and compensated at the applicable statutory rates. Wages will be paid on a regular and predictable schedule, in a transparent manner, and without unlawful deductions, ensuring that workers clearly understand how their remuneration is calculated. The principle of equal pay for work of equal value will be applied consistently, irrespective of gender, nationality, or other personal characteristics. Employment during the construction phase will be contractual and time-bound, with workers clearly informed at the outset of the duration, terms, and conditions of their employment. This transparency will help manage expectations, reduce uncertainty regarding job security, and minimise the risk of misunderstandings or disputes between workers and employers.

#### 17.5.1.8 Workers' Right to Health

Construction activities inherently pose a range of occupational health risks due to the use of heavy machinery, manual handling of materials, and exposure to physical, chemical, and biological hazards. These risks may result in injuries or work-related illnesses if not adequately managed. In addition, the mobilisation of a large construction workforce, often working long hours and, in some cases, residing in shared or temporary accommodation can increase the

likelihood of communicable disease transmission, particularly respiratory and gastrointestinal infections. Such risks may be exacerbated by close living and working conditions, limited awareness of preventive measures, and high workforce turnover.

To manage these risks, contractors will be required to implement comprehensive occupational health and safety and workforce health management measures. These will include the provision of readily accessible first aid facilities and trained personnel on site, as well as clear procedures for emergency medical response and referral to external healthcare facilities when required. Health awareness and education programmes will be delivered to workers, with a focus on hygiene practices, early identification of symptoms, and prevention of communicable diseases. Robust incident reporting, recording, and investigation mechanisms will also be established to ensure that all health-related incidents are promptly addressed, root causes are identified, and corrective actions are implemented.

In the event of a suspected or confirmed disease outbreak, contractors will comply fully with applicable national public health requirements and guidelines. This will include timely reporting, implementation of control measures such as isolation or enhanced sanitation where necessary, and coordination with local health authorities to support effective disease management and protect both the workforce and surrounding communities.

#### 17.5.1.9 Collective Bargaining and Freedom of Association

Workers shall be permitted to exercise their rights to freedom of association and collective bargaining in accordance with the Labour Code of the Republic of Uzbekistan (Law No. ZRU-798, effective from 30 April 2023) and applicable national legislation governing trade unions and social partnership. The Labour Code provides for collective negotiations, collective agreements and collective contracts between employers and workers' representatives as mechanisms for establishing employment conditions, labour relations and social guarantees.

Although trade unions remain more prevalent within state-owned enterprises than in the private sector, workers employed by the EPC Contractor and all subcontractors will be free to establish or join workers' organisations, trade unions or other representative bodies of their choosing, consistent with national legislation and the requirements of IFC PS 2 and EBRD PR 2. Workers' representatives will be able to carry out their legitimate functions without intimidation, discrimination or retaliation. Where workers are not represented by a trade union or other formal organisation, the EPC Contractor and subcontractors will not discourage the development of alternative worker representation mechanisms and will engage with workers through appropriate and transparent channels in accordance with national law and international lender requirements.

#### 17.5.1.10 Workers' Freedom of Movement

Workers will not be restricted to the accommodation camps and will be allowed to move freely within the community and travel to outside the project area, region and country. However, in order to avoid cultural or religious conflicts with the local communities due to alternative ideals, behaviour and cultural practices that some of the workers might have, adequate training (cultural sensitization training) will be provided to the non-local workers prior to interactions with the local community.

#### 17.5.1.11 Worker Grievance Mechanism

To uphold workers' rights and facilitate the timely resolution of concerns arising during the construction phase, the Project will establish a dedicated Worker Grievance Mechanism (WGM). The mechanism will be accessible to all Project workers, including direct employees, contractor and subcontractor personnel, and, where relevant, workers employed by primary (core) suppliers engaged in Project-related activities. Where primary suppliers maintain their own worker grievance mechanisms, these will be required to meet the principles of

accessibility, confidentiality, transparency, non-retaliation, and timely resolution consistent with IFC PS 2 and other applicable lender requirements. Workers employed by primary suppliers will also have the ability to escalate grievances through the Project WGM where supplier-level mechanisms are unavailable, ineffective, or where concerns remain unresolved.

The Worker Grievance Mechanism will be designed to maintain confidentiality while providing a culturally appropriate, trusted, and accessible avenue for raising concerns. Workers will be able to submit grievances related to employment terms and conditions, wages, working hours, occupational health and safety, accommodation, discrimination, harassment, forced labour, child labour, retaliation, or other work-related issues through multiple channels, including on-site focal points, dedicated hotlines, email, grievance boxes, and written submissions.

The mechanism will guarantee protection against retaliation, ensuring that all workers can raise concerns freely and in good faith without fear of adverse consequences. Information on the grievance process will be communicated during worker induction and through regular toolbox talks, noticeboards, and worker accommodation facilities, with procedures available in languages understood by the workforce.

All grievances will be systematically recorded, acknowledged, tracked, investigated, and resolved within defined timeframes. Workers will receive feedback on the progress and outcome of their complaints, and unresolved or systemic issues will be escalated to senior Project management for review and corrective action. Grievance trends will be monitored as part of the Project's Environmental and Social Management System (ESMS) to identify recurring issues and opportunities for continual improvement. Effective implementation of the Worker Grievance Mechanism, together with oversight of contractor and primary supplier grievance arrangements, will ensure that residual labour and human rights risks associated with unresolved worker concerns remain low throughout the construction phase.

#### 17.5.1.12Potential Gender Risks Associated with the Project

**Gender Based Violence and Harassment**

An influx of workers from outside the Project region will increase the likelihood of Gender Based Violence and Harassment (GBVH), Sexual Exploitation & Abuse (SEA) and Sexual Harassment (SH). The construction workers are likely to be predominantly young male coming from other regions of Uzbekistan and outside the country. These workers will be away from their families and removed from their normal social spheres. This could potentially result into peer pressure and involvement in unlawful behaviour such as harassment of local women, young girls and boys or women within the Project workforce. Such behaviour can lead to increase in exploitative sexual relationships and unwanted aggressive advances and harassment. This could also lead to disintegration of relationships in local households impacted by GBVH/SEA/SH.

During the construction phase, workers will also be vulnerable to various forms of harassment, exploitation, and abuse, aggravated by the traditionally male working environment. Incidents of GBVH/SEA/SH are likely to be committed by co-workers or construction supervisors and can be attributed to gender stereotypes about the sexual availability of female construction workers. As previously mentioned, there is a rehabilitation and adaptation centre located in Nukus that provide support to women and their children who have experienced GBVH and/or SEA/SH. In addition, income earning opportunities for women through direct employment during the construction phase or through indirect employment has the potential to increase household tensions and expose women to harassment and violence in their homes or communities.

Some of the male workers who will be transporting Project machinery and equipment and goods will also be involved in long distance travel which in some cases will be between different countries. There is a risk that they can also be involved in GBVH/SEA/SH on the

routes they use and at stops associated with the Project even if it is outside the Project boundary.

**GBVH/SEA/SH in Accommodation Facilities**

It is understood that the EPC Contractor (and possibly the sub-contractors) will provide accommodation facilities for their workers on site. This presents a safety risk especially for women who may be working at the Project and living within the designated accommodation areas and their use to common areas such as the cafeteria.

To address such risks, the EPC Contractor will be required to provide safeguards such as locating women accommodation facilities in a separate compound from the men, provision of locks on doors, separate sanitation facilities, adequate lighting etc. In addition, since majority of the population in Uzbekistan is Muslim, the EPC Contractor will provide options for separate social facilities for the men and women.

**Wage Discrimination Based on Gender**

In an effort to promote wage parity between men and women, the government of Uzbekistan ratified ILO's Convention No. 100 (Equal Renumeration for Men and Women Workers for Work of Equal Value). However, the problem is that women tend to be concentrated in low-status sectors which leads to low-wage jobs. In addition, the construction industry is predominantly male and women may only be offered low-paying jobs such as cooks, cleaners etc.

As such, the EPC Contractor will be required to provide access to recruitment opportunities for women based on their qualifications and equal salaries as their male counterparts undertaking work of the same value. In addition, a policy of equal pay will be included in the EPC Contractor's HR Policy or as a stand-alone.

**Discrimination Based on Employment Benefits and Guarantees**

Traditional norms in Uzbekistan associate women roles to care givers especially in rural areas. Women who intend to pursue a career are still expected to balance between their job obligations and family life which ultimately affect their career paths. In addition, employers may potentially prefer to employ men over women because most of the employment family benefits and guarantees are associated to women. For instance, according to Article 233 of the Labour Code, women employees are entitled to paid maternity leave for a period of 126 days and in some cases childcare allowances are also provided. This includes 70 days given before the expected birth of the child and 56 after the birth. In case of complications, maternity leave can be extended by an additional 14 days. Even though men can also claim similar benefits in paternity leave, childcare (especially in rural areas) is still seen as a woman's job.

As such, women of childbearing age may face potential discrimination during the recruitment process because the EPC Contractor may want to avoid providing the benefits and guarantees relating to maternity or childcare. To mitigate this, the EPC Contractor will be required to include the benefits and guarantees for both men and women in the HR policy with a clear commitment to non-discrimination during the recruitment process.

In addition, the EPC Contractor will ensure that all workers' written employment contracts are provided in the local language. The key terms and conditions of employment will be clearly communicated to all workers prior to commencement of employment. For workers who are illiterate, the Contractor will ensure that the terms and conditions are explained verbally in an accessible manner, using appropriate methods such as verbal briefings and assisted explanations in the presence of supervisors or HR representatives, to ensure full understanding and informed consent.

**Discrimination Based on Sexual Orientation**

The Uzbek laws and regulations prohibit discrimination in the workplace based on race, gender and religion. However, it is noted that there are no provisions that provide protection

to workers against discrimination because of their sexual orientation or gender identity. As such, any workers who have a different gender identity and/or sexual orientation may face discrimination for not conforming to societal and/or religious norms. They may also be at a high risk of violence and harassment as a way of punishing them to conform to prevailing societal views.

To address such risks, the EPC Contractor's HR policy will include a non-discrimination policy and a code of conduct, GBVH policy applicable to all employees and sub-contractors.

#### 17.5.1.13Supply Chain Risks

The engagement of suppliers will present potential risks relating to labour and working conditions such as:

- Child labour, forced labour, gender- based violence and sexual abuse, exploitation and harassment
- Lack of written contracts for workers.
- Labour rights violations including poor working conditions and poor terms of agreement for female employees, overtime work without pay etc.
- Health & safety issues for workers and local communities.
- Risks associated with the use of migrant labour and ethnic minorities.
- Risks to freedom of movement e.g., being able to leave worker accommodation; and
- Impact on the environment relating to pollution of water supplies, soil and air.

The project company will request to assess these risks from their suppliers by undertaking supply risk assessment.

**Table 17-4 Labour and Working Conditions: Impact Significance, Mitigation & Management Measures and Residual Impacts – Construction**

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Occupational Health and Safety | High | Construction workers, contractors, subcontractors | High | Moderate | • Develop and implement a Construction Occupational Health and Safety Management Plan aligned with IFC PS2 and international good practice.<br>• Undertake task-specific risk assessments and method statements for all high-risk activities.<br>• Establish contractor and subcontractor OHS management requirements and performance monitoring mechanisms.<br>• Implement permit-to-work systems for high-risk activities including lifting, hot works, confined spaces, electrical works, and working at height.<br>• Provide mandatory PPE and enforce compliance through supervision and inspections.<br>• Provide worker induction, competency-based training, toolbox talks, and safety awareness programmes.<br>• Implement traffic management measures to control interaction between vehicles, equipment, and workers.<br>• Provide first aid facilities, emergency response procedures, and referral arrangements with external medical facilities.<br>• Establish incident reporting, investigation, corrective action, and lessons-learned processes.<br>• Conduct regular OHS inspections, audits, and contractor performance reviews.<br>• Ensure all subcontractors comply with the Project OHS requirements and maintain equivalent standards. | Negligible |
| Right to Work, Forced Labour, Right to Adequate Standard of Living, Non- | High | Local and non-local workers, subcontracted per- | High | Moderate | • Ensure that all workers engaged by the EPC contractor, subcontractors, relevant suppliers, and any labour recruitment or employment agencies are employed under written contracts specifying roles, wages, working hours, and benefits. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Discrimination | | sonnel, vulnerable groups | | | • In addition, the EPC Contractor will ensure that all workers' written employment contracts are provided in the local language. For workers who are illiterate, the Contractor will ensure that the terms and conditions are explained verbally in an accessible manner, using appropriate methods such as verbal briefings and assisted explanations in the presence of supervisors or HR representatives, to ensure full understanding and informed consent.<br>• Where labour recruitment or employment agencies are used, the EPC Contractor, subcontractors, and suppliers shall ensure that only reputable, licensed, and duly registered agencies are engaged. Due diligence procedures shall be implemented to assess agency compliance with applicable labour laws and ethical recruitment practices, including verification of their policies and track record regarding forced labour risks, in line with the EBRD Guidance Note on Forced Labour (2023).<br>• All recruitment processes, whether direct or through agencies, shall be transparent and voluntary, and no recruitment, processing, placement, or any related fees shall be charged to workers at any stage of the employment process. The EPC Contractor shall ensure that "employer pays principle" is applied throughout the supply chain.<br>• The EPC contractor, subcontractors, agencies, and suppliers shall ensure that employment decisions are not based on personal characteristics such as gender, race, nationality, ethnic origin, religion or belief, disability, age, or sexual orientation, except where directly related to inherent job requirements.<br>• The EPC contractor, subcontractors, agencies, and suppliers shall prohibit all forms of forced labour, including any work or service that is not voluntarily performed and is exacted under threat of force or penalty, including but not limited to indentured labour, bonded labour, debt bondage, or similar arrangements.<br>• The EPC Contractor, subcontractors, agencies, and suppliers shall prohibit child labour in line with applicable national legislation and international standards and shall implement robust age verification procedures during recruitment to ensure that no person below the legal working age is employed. | |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Apply equal opportunity and non-discrimination policies across the EPC contractor, subcontractors, agencies, and suppliers, ensuring fair treatment regardless of gender, nationality, religion, or other protected characteristics.<br>• Provide employees engaged by the EPC contractor, subcontractors, agencies, and suppliers with suitable accommodation where applicable, ensuring worker accommodation facilities are managed in accordance with the EBRD and IFC Workers' Accommodation: Processes and Standards, thereby supporting adequate living conditions and reducing unnecessary interaction with surrounding communities.<br>• Include labour and working condition requirements in all contracts with the EPC contractor, subcontractors, agencies, and suppliers, clearly defining obligations to comply with the Project Labour Management Plan (LMP), applicable standards, and national legislation.<br>• Embed labour standards compliance requirements within all agreements with the EPC contractor, subcontractors, agencies, and suppliers.<br>• Conduct regular monitoring and internal audits covering the EPC contractor, subcontractors, agencies, and suppliers to ensure compliance with national legislation and applicable international standards. | |
| Workforce Management and Worker Influx | Medium | Local communities, migrant and non-local workers | Medium | Moderate | • Implement phased workforce mobilisation and demobilisation to reduce sudden influx.<br>• Prioritise local recruitment where feasible and communicate opportunities transparently.<br>• Provide orientation and cultural awareness programmes for non-local workers.<br>• Monitor workforce composition, numbers, and movements regularly.<br>• Engage with local authorities and communities to anticipate potential social impacts.<br>• Implement workforce codes of conduct to promote respectful behaviour and minimise conflict | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Provision of Inadequate Accommodation Facilities | Moderate | On-site workforce (including female workers) | High | Moderate | • Develop and implement a Workers' Accommodation Plan in compliance with the EBRD and IFC guidance Workers' Accommodation: Processes and Standards (2009). The Plan will include an accommodation and welfare audit programme to ensure ongoing conformity with these standards.<br>• The Project Company will conduct regular audits of worker accommodation facilities to verify compliance and to identify, manage, and address any remaining or emerging risks related to adequacy of accommodation conditions. | Low |
| Wages, Working Hours, Right to Health & Rest and Job Security | Medium | All workers | High | Moderate | • Ensure compliance with applicable national labour laws on working hours, overtime, and rest periods for all categories of workers, including direct workers, EPC contractor personnel, and subcontractor personnel.<br>• Ensure that overtime is voluntary, properly recorded, and compensated at statutory rates for all worker categories.<br>• Implement transparent and structured wage systems with predictable payment schedules, supported by regular payroll reviews and payroll audits across the workforce, including contractors and subcontractors.<br>• Ensure equal pay for work of equal value regardless of gender or other characteristics across all categories of workers.<br>• Establish clear and enforceable employment terms and contracts for all workers, including direct, EPC contractor, and subcontractor staff, clearly defining duration, job responsibilities, and benefits.<br>• Monitor compliance with job security, employment rights, wages, working hours, and rest periods through payroll audits, workforce reviews, and periodic workers' interviews across all worker groups. | Negligible |
| Worker Grievance Mechanism | Medium | All workers | High | Moderate | • Establish a dedicated Worker Grievance Mechanism (WGM) for the construction phase that will be accessible to all personnel, including direct workers and contractor/subcontractor workers, as well as local and female workers. The mechanism will allow for confidential and anonymous grievance submissions. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Inform all workers at the time of hiring about the grievance mechanism, including the availability of anonymous reporting, and ensure continued awareness and ease of access throughout employment.<br>• Ensure the grievance mechanism remains easily accessible to all workers throughout the construction phase.<br>• Provide culturally appropriate and multiple reporting channels, including on-site focal points, hotlines, written submissions, and verbal reporting options for workers who are unable to write.<br>• Ensure confidentiality of all grievances and protect complainants from retaliation or any form of retribution.<br>• Include female representatives within the grievance redress mechanism to support female workers and women from nearby communities.<br>• Ensure grievances are addressed promptly at an appropriate management level through a clear, transparent, and easily understandable process.<br>• Record, track, and systematically resolve all grievances, with timely feedback provided to workers on outcomes and actions taken.<br>• Ensure that the grievance mechanism does not restrict or replace access to judicial or administrative remedies, collective bargaining processes, or arbitration mechanisms. Regularly review grievance trends and stakeholder feedback to strengthen policies, procedures, and broader worker welfare practices.<br>• Provide specialised support for complaints related to Gender-Based Violence and Harassment (GBVH), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH), ensuring a survivor-centred approach managed by trained personnel, with strict protection of confidentiality and informed consent, and clear referral pathways to external medical, psychosocial, and legal support services, in line with IFC Guidance on GBVH in the construction sector. | |
| Potential Gender Risks Associated | Medium | Female workers, local women, all workers | High | Moderate to Major | • Workers will receive a code of conduct in local languages, covering reporting, investigations, disciplinary actions, and zero tolerance for sexual harassment and gender-based violence (GBVH). | Negligible to Moderate |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| with the Project | | | | | • Mandatory training and awareness programs will be conducted regularly for the workforce on GBVH/SEA/SH risks, grievance mechanisms, and relevant laws making harassment punishable.<br>• A balanced representation of women will be included in the HSE team to ensure accessibility and approachability for female workers.<br>• Project personnel handling GBVH/SEA/SH grievances will receive specialized training, preferably coordinated with local GBVH organizations.<br>• Female participation will be ensured in grievance redress committees to support women workers and local community members.<br>• Regular consultations with women in the workforce and nearby communities will be conducted to identify concerns.<br>• The EPC Contractor will prioritize local recruitment to minimize the influx of external workers and reduce accommodation costs.<br>• Workers will have opportunities to regularly return to their families and access recreational and entertainment facilities.<br>• The EPC Contractor will allow anonymous submission of harassment complaints and protect complainant confidentiality.<br>• Coordination with local authorities will be maintained to investigate any complaints involving project-related gender violence and harassment.<br>• Targeted training and awareness programs, including life skills such as leadership and decision-making, will be provided to vulnerable groups, particularly women.<br>• A Gender Equality and GBVH/SEA/SH Policy will be prepared in line with Uzbek regulations and lender requirements, including training for workers, subcontractors, and suppliers.<br>• Separate safe and secure accommodation and sanitary facilities will be provided for men and women; lockable facilities are mandatory for female workers.<br>• Separate social and recreational facilities will be provided for male and female workers.<br>• Worker accommodation will comply with EBRD and IFC standards. | |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Equal access to recruitment, training, promotions, and employment opportunities will be ensured for women through a Local Recruitment Plan.<br>• The EPC Contractor will implement equal wage policies, providing women remuneration equal to men for work of equal value.<br>• HR policies will include non-discrimination, gender equality, and GBVH policies applicable to all employees and subcontractors, covering marital and reproductive status.<br>• Zero tolerance for sexual harassment or discrimination will be enforced and embedded in workers' codes of conduct.<br>• The grievance mechanism will be accessible to all workers at no cost, with no risk of retaliation.<br>• Gender and inclusion orientation will be delivered culturally appropriately to minimize risks of harassment and violence. | |
| Supply Chain Risks | Medium | Workers employed through contractors and suppliers | Medium | Moderate | • The Project Company will develop and implement a Supply Chain Management Plan, including an Environmental and Social (E&S) Supplier and Vendor Management framework, to manage labour, Occupational Health and Safety (OHS), and human rights risks across the supply chain, with explicit consideration of child labour risks.<br>• Prior to engagement, supply chain risk assessments will be conducted to identify potential labour-related risks, including forced labour, child labour, unsafe working conditions, and OHS non-compliance.<br>• All supplier, subcontractor, and contractor agreements will include labour standards and E&S compliance clauses aligned with applicable national laws and international good practice, including explicit prohibition of child labour.<br>• Core suppliers will be required to implement the recommendations arising from supply chain audits, including the development and implementation of corrective action plans where non-compliance is identified.<br>• The Project Company will undertake regular monitoring, audits, and inspections of suppliers and subcontractors to verify compliance | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | with labour standards, working conditions, and OHS requirements, including measures to prevent and detect child labour.<br>• Core suppliers will be required to maintain adequate records, rules, and policies related to worker protection, labour conditions, and workplace health and safety, including age verification documentation for all workers.<br>• Training and capacity-building activities will be provided to contractors and suppliers to strengthen awareness and implementation of labour standards and OHS requirements, including prevention of child labour and application of age verification procedures during recruitment.<br>• Key supply chain indicators, including child labour risks, working conditions, and OHS performance, will be monitored and reported on a regular basis.<br>• The Project Company will promptly notify lenders of any identified or alleged labour-related risks, including forced or child labour, associated with core suppliers.<br>• A disengagement clause will be incorporated into the loan agreement to allow termination of supplier relationships in cases of material non-compliance with the above requirements. | |

### 17.5.2 Operation Phase

#### 17.5.2.1 Employment and Workforce Composition

During the operational phase, the project will employ a stable, long-term workforce comprising direct employees of the airport operator as well as contracted personnel engaged in security, ground handling, maintenance, retail, cleaning, catering, and other support services. The transition from a temporary construction workforce to a permanent operational workforce may present risks related to recruitment transparency, consistency of employment terms, and equitable access to job opportunities, particularly for local communities. The presence of multiple service providers and subcontractors could lead to variations in wages, working hours, benefits, and conditions of employment if not adequately regulated. Without effective oversight, these disparities may result in worker dissatisfaction, reduced morale, and potential labour disputes.

#### 17.5.2.2 Occupational Health and Safety

Airport operations inherently involve elevated occupational health and safety risks due to continuous aircraft movements, vehicle traffic, noise exposure, use of specialised equipment, and the requirement for 24-hour operations. Workers engaged in activities, such as ground handling, baggage operations, aircraft servicing, firefighting, and security, may be exposed to risks including collisions, slips and falls, ergonomic strain, extreme weather conditions, and prolonged exposure to high noise levels. Inadequate training, insufficient supervision, or weak enforcement of safety procedures could increase the likelihood of accidents or near-miss incidents. Office-based and customer-facing staff may also experience health impacts associated with prolonged screen use, standing for extended periods, and psychosocial stress linked to high passenger volumes and security pressures.

#### 17.5.2.3 Working Hours, Shift Work, and Fatigue

The operational phase of an international airport requires continuous, shift-based staffing, including night shifts, early morning operations, and extended peak-hour coverage. These working patterns may lead to fatigue, sleep disruption, and stress, particularly for operational staff involved in safety-critical functions. If fatigue risks are not effectively managed, worker alertness and performance may be compromised, increasing the likelihood of occupational incidents and operational errors. Long or irregular working hours may also negatively affect worker wellbeing, job satisfaction, and work-life balance over time.

#### 17.5.2.4 Contractor and Subcontractor Labour Management

A significant proportion of the operational workforce is expected to comprise direct employees, contractor and subcontractor workers, and, where relevant, primary supply chain workers. While the ESIA outlines measures for managing labour and occupational health and safety risks associated with contractors and subcontractors, the Project will be required to develop and implement a comprehensive Labour Management Plan (LMP) in accordance with the requirements of IFC Performance Standard 2 (PS2), EBRD Performance Requirement 2 (PR2), applicable national labour legislation, and other relevant lender requirements.

The Labour Management Plan will establish a consistent framework for the management of all categories of project workers and will include, at a minimum: (i) terms and conditions of employment; (ii) non-discrimination and equal opportunity provisions; (iii) workers' rights and protections; (iv) wage and benefit requirements; (v) working hours and leave entitlements; (vi) occupational health and safety requirements; (vii) worker accommodation standards, where applicable; (viii) prevention of child labour and forced labour; (ix) contractor and subcontractor management and monitoring procedures; (x) worker grievance mechanisms; (xi) workforce

training and awareness programmes; and (xii) monitoring, reporting, and corrective action procedures.

Without a lender-compliant Labour Management Plan and effective oversight mechanisms, there is a risk of inconsistent implementation of labour standards across different employers and worker categories, potentially resulting in non-compliance with applicable standards, inadequate protection of workers' rights, reputational risks, and non-conformance with lender requirements.

#### 17.5.2.5 Workforce Diversity, Gender, and Non-Discrimination

The operational workforce is expected to include a diverse range of employees across different roles, including women, young workers, and potentially migrant or non-local personnel. Airport operations involve security-sensitive environments, customer-facing roles, and shift work, which may heighten risks related to workplace harassment, discrimination, or unequal access to career progression if not properly addressed. Women working night shifts or in male-dominated operational roles may face additional safety or social challenges. Language and cultural barriers may also affect migrant workers' ability to access training, safety information, or grievance mechanisms.

#### 17.5.2.6 Forced Labour and Child Labour

A significant proportion of the operational workforce is expected to be engaged through third-party contractors and service providers, in addition to direct employees of the Project Company or O&M Company. While direct employees are likely to be managed under established HR policies and procedures, which can help reduce the risk of worker exploitation where these systems are adequately designed and resourced, the use of contractors, subcontractors, and service providers introduces additional labour risks. In particular, workers engaged through third parties may face heightened exposure to adverse labour and working conditions, including risks of forced labour and child labour, due to varying levels of oversight, inconsistent application of labour standards, and weaker control over recruitment and employment practices across the supply chain.

#### 17.5.2.7 Right to Adequate Standard of Living

No long-term accommodation requirements are anticipated for the operational phase of the Project. However, as with construction, operational activities will need to plan for and enforce just and fair treatment of operation and maintenance staff (including any engaged sub-contractors) in accordance with lender requirements and relevant Uzbekistan national requirements. Allowance will also need to be made for site staff welfare facilities including sanitation, rest, recreational and medical facilities.

#### 17.5.2.8 Potential Gender Risks

Although there will be reduced workforce during the operational phase of the Project, the risk of gender issues relating to GBHV/SEA/SH, wage discrimination and access to employment benefits etc will remain. However, as with construction, operational activities will need to plan for and enforce just and fair treatment of operation and maintenance staff (including any engaged sub-contractors) in accordance with lender requirements and relevant Uzbekistan national requirements. Gender needs will be considered for welfare facilities including sanitation, rest, recreational and medical facilities. All the mitigation and management for gender risks during the construction phase will also be applicable for the operational phase of the project.

In addition, the O&M Company will also be required to have a HR policy with clear provisions for non-discrimination, code-of conduct and a GBVH policy.

**Table 17-5 Labour and Working Conditions: Impact Significance, Mitigation & Management Measures and Residual Impacts – Operation**

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Employment and Workforce Composition | Medium | Direct employees, contract and subcontracted workers | Medium | Moderate | • Establish a formal Human Resources Management System for operations aligned with IFC PS2 and Uzbekistan labour law.<br>• Implement transparent recruitment procedures with clear job descriptions, selection criteria, and employment contracts.<br>• In addition, the EPC Contractor will ensure that all workers' written employment contracts are provided in the local language. For workers who are illiterate, the Contractor will ensure that the terms and conditions are explained verbally in an accessible manner, using appropriate methods such as verbal briefings and assisted explanations in the presence of supervisors or HR representatives, to ensure full understanding and informed consent.<br>• Promote local employment opportunities where feasible, including outreach to nearby communities.<br>• Ensure all employees and contractors receive written employment terms outlining wages, working hours, benefits, and conditions.<br>• Inclusion of labour and working conditions requirements within all contractor and subcontractor agreements, with clear obligations for compliance with the Project LMP, applicable standards, and national legislation.<br>• Monitor contractor compliance with labour standards through regular audits and reporting requirements.<br>• Maintain records of workforce composition, employment status, and contractual arrangements. | Negligible |
| Occupational Health and Safety | Medium | All workers | High | Moderate | • Provide a safe and healthy working environment for all employees and contractors, taking into account the inherent risks associated with airport operations, including airside, landside, terminal, and maintenance activities.<br>• The Project's Operator will implement and maintain an OHS management system specific to the operational phase taking into account specific risks associated with the project, legal requirements and duty of care. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Identify, assess, and manage occupational health and safety risks through task-specific risk assessments for airside operations, ground handling, terminal services, maintenance works, traffic interfaces, working at height, electrical systems, and confined spaces.<br>• Provide mandatory induction and periodic refresher training for all staff and contractors, covering airport-specific hazards such as aircraft movements, vehicle–pedestrian interactions, noise exposure, fire and fuel risks, electrical hazards, and emergency response procedures.<br>• Establish and maintain procedures for incident, accident, and near-miss reporting, investigation, and implementation of corrective and preventive actions, with appropriate documentation and regulatory reporting where required.<br>• Coordinate and integrate emergency prevention, preparedness, and response measures, including fire safety, medical response, evacuation procedures, and coordination with airport emergency services and relevant authorities.<br>• Ensure that all affiliated contractors and sub-contractors comply with the Project's OHS Management System through contractual obligations, supervision, audits, and performance monitoring.<br>• Maintain comprehensive documentation and reporting systems for occupational incidents, injuries, diseases, training, inspections, and audits to support continuous improvement of occupational health and safety performance. | |
| Working Hours, Shift Work, and Fatigue | Medium | Shift-based operational staff, safety-critical personnel | Medium | Moderate | • Develop and enforce working hour limits in compliance with national labour law and international good practice.<br>• Implement fatigue management procedures for safety-critical roles, including rest periods between shifts.<br>• Design shift schedules to minimise excessive night work and consecutive long shifts.<br>• Provide suitable rest areas and welfare facilities for staff working extended or night shifts.<br>• Train supervisors to identify signs of fatigue and stress among workers. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Periodically review shift patterns based on operational demands and worker feedback. | |
| Contractor and Subcontractor Labour Management | Medium | Contract and subcontracted workers | Medium | Moderate | • Include labour and working condition requirements in all operational contracts and service agreements.<br>• Require contractors to comply with national labour legislation, IFC PS2, and Project labour standards.<br>• Establish clear roles and responsibilities for labour management oversight within the O&M Company.<br>• Conduct periodic labour compliance audits and site inspections of contractors.<br>• Require contractors to maintain grievance mechanisms aligned with the Project Worker Grievance Mechanism.<br>• Take corrective actions, including contractual remedies, in cases of non-compliance. | Negligible |
| Workforce Diversity, Gender, and Non-Discrimination | Medium | Women workers, young workers, migrant or non-local workers | High | Moderate | • Implement a Human Resources Policy with explicit commitments to non-discrimination and equal opportunity.<br>• Ensure fair recruitment, promotion, and remuneration practices regardless of gender, ethnicity, or employment status.<br>• Provide gender-sensitive training, including workplace behaviour and harassment awareness.<br>• Ensure equal access to training, safety information, and grievance mechanisms for all workers.<br>• Provide gender-appropriate welfare facilities, including sanitation and rest areas.<br>• Monitor workforce diversity indicators and address identified gaps. | Negligible |
| Forced Labour and Child Labour | Low to Medium | Contract and subcontracted workers | High | Moderate | • Prohibit forced labour and child labour through Project policies aligned with ILO conventions and IFC PS2.<br>• Verify worker age and identity documentation during recruitment and contractor onboarding.<br>• Prohibit retention of identity documents or payment of recruitment fees by workers. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Include forced labour and child labour clauses in all contractor agreements.<br>• Conduct periodic audits of labour agents and contractors to verify compliance.<br>• Provide training to HR staff and contractors on identifying and preventing labour exploitation risks. | |
| Right to Adequate Standard of Living | Low to Medium | Operational workforce | Medium | Moderate | • Provide adequate welfare facilities at the airport, including sanitation, drinking water, rest areas, and medical facilities.<br>• Ensure access to safe transport arrangements for night-shift and emergency-duty staff where required.<br>• Maintain clean, safe, and well-managed staff facilities through regular inspections.<br>• Ensure contractors provide equivalent welfare standards for their employees.<br>• Establish procedures for workers to raise concerns related to welfare conditions. | Negligible |
| Potential Gender Risks | Medium | Women workers and vulnerable groups | High | Moderate | • Implement and enforce a Code of Conduct applicable to all staff and contractors.<br>• Develop and adopt a GBVH/SEA/SH Policy for the operational phase.<br>• Provide mandatory training on GBVH prevention and respectful workplace behaviour.<br>• Ensure confidential and survivor-centred grievance and reporting mechanisms.<br>• Apply disciplinary measures for violations of the Code of Conduct.<br>• Ensure gender-sensitive design and management of welfare facilities.<br>• Apply all relevant gender mitigation measures implemented during construction to the operational phase. | Negligible |

## 17.6 Monitoring

Monitoring of Labour, Working Conditions will be undertaken as required via the management measures outlined above. The following table outlines key indicators.

**Table 17-6 Labour and Working Conditions Key Monitoring indicators**

| Monitoring | Parameter | Frequency & Durations | Monitoring Locations |
|---|---|---|---|
| **Construction & Operations** | | | |
| Worker Contracts & HR | Records of contracts, payments, receipt of benefits, leave entitlements, retrenchment, and compliance with labour laws | On-going | All Project workers (direct and subcontracted) |
| Women employed in the Project | Number of women employed, their rank, roles, remuneration compared to men in equivalent positions | On-going | All female Project personnel, including subcontractors |
| Worker Welfare | Availability and adequacy of sanitation facilities, office spaces, welfare, and rest areas | On-going | At all such facilities on-site |
| Quality of Accommodation | Inspection/internal audit of worker accommodation facilities vs. IFC & EBRD standards | Monthly | All accommodation facilities provided to direct and full time sub-contracted labour. |
| OH&S Near Misses (involving external parties) | Any reported near-misses involving workers or external parties | On-going | Project site and adjacent operational areas |
| OH&S Emergency Situations and Incidents | Any classified emergency situations, accidents, or incidents | On-going | Project site, landside |
| Grievances including those relating to gender-based violence and harassment, sexual exploitation & abuse and sexual harassment | All grievances received, including those related to GBVH, SEA, SH, discrimination, forced labour, and working conditions | On-going | Project site, accommodation facilities, and other reporting channels |
| Health Monitoring | Records of illnesses, occupational diseases, injuries, and health surveillance outcomes | On-going | Project site clinic or first aid facilities |
| Human rights complaints/violations as reported by Project workers including workers hired through third-parties or in the supply chain | Reported human rights complaints/violations, including supply chain labour concerns | On-going | As defined in the Stakeholder Engagement Plan (SEP) |

| Monitoring | Parameter | Frequency & Durations | Monitoring Locations |
|---|---|---|---|
| Working Hours & Fatigue Management | Records of shift schedules, overtime, rest periods, and fatigue management compliance | On-going | Project site, landside |
| Training & Awareness | Records of induction, refresher, and GBVH/SEA/SH training sessions attended | On-going | All operational personnel, contractors, and subcontractors |
| Supply Chain Labour Compliance | Supplier/subcontractor adherence to labour standards, OHS, and E&S clauses | Quarterly | Contractor and supplier facilities supporting airport operations |
| Workforce Diversity & Inclusion | Composition of workforce by gender, age, nationality, and role | Semi-annual | Project workforce including contractors |

# 18.0 Community Health, Safety, and Security

## 18.1 Applicable Standards and Regulatory Requirements

### 18.1.1 National Regulations

#### 18.1.1.1 Constitution of the Republic of Uzbekistan (1992, as amended in 2023)

The constitution of the Republic of Uzbekistan lays out an array of constitutional rights, entitlements and duties pertaining to public health and safety, and access to judicial remedies for criminal offences. Key articles in this connection include the following:

- Article 25 states “The right to life is an inalienable right of every human being and shall be protected by law”.
- Article 26 states “Human honour and dignity are inviolable. Nothing may be a basis for their derogation. No one shall be subjected to torture, violence or other cruel, inhumane, or degrading treatment or punishment.
- Article 27 states “Arrest, commitment, and confinement are allowed only by a court decision. Without a court decision, a person may not be detained for more than forty-eight hours”.
- Article 40 states “Everyone shall have the right to a favourable environment, reliable information about its condition.
- Article 48 states “Everyone shall have the right to health and qualified medical care”.
- Article 55 states “Everyone shall be entitled to legally defend his/her rights and freedoms and shall have the right to appeal any unlawful decisions, acts and omissions of State bodies and other organizations, their officials”.

#### 18.1.1.2 Law on protection of women from harassment and abuse (2019)

The national law provides for the protection of women from all forms of harassment and abuse. While violence against women is recognized in the Criminal Code of Uzbekistan, provisions for the registration, investigation, and prosecution of GBV are not prescribed in the Code.

In furtherance of the Code, the Act established specific procedures for the management of GBV cases for relevant law enforcement authorities and mandates the provision of medical, psychological, legal, economic, and humanitarian support to victims of GBV. In 2020, systems for the issuance of protection orders for victims of GBV were fully instituted across the country.

#### 18.1.1.3 Resolution on measures to improve the system of social rehabilitation and adaptation, and the prevention of domestic violence (2018)

The Resolution No. PP-3827 of the Head of the State dated 07.02.2018 "On measures to improve the system of social rehabilitation and adaptation, as well as the prevention of domestic violence" identifies priority areas for improving the system of social rehabilitation and adaptation, prevention of family and domestic violence, and approved the program of practical measures to improve the system of social rehabilitation and adaptation, as well as the prevention of domestic violence.

The Resolution provides for the following key measures:

- Priority areas include improving the social system of rehabilitation, adaptation and preventative measures against domestic violence.
- A program of practical measures to improve the system of social rehabilitation, adaptation and prevention of domestic violence.
- A Center for Rehabilitation and Adaptation for victims of violence, as well as the prevention of suicides in territorial divisions of the Women's Committee of Uzbekistan.

- Public "hot line" on number “1146”, for provision of emergency psychological, psycho-therapeutic and legal support and information about organizations that may provide additional assistance.

#### 18.1.1.4 Other relevant legislation

The list of laws and decrees with broad provisions for the protection of public health, safety and security, and other human rights in the context of public wellbeing, includes:

- Decree No. 964 of 5 December 2017 on measures for improvement of the activity of self-government bodies aimed at ensuring employment, firstly for the youth and women
- The National Human Rights Strategy was approved by Presidential Decree on 22 June 2020. No. PD-6012
- Law on guaranteeing equal rights and opportunities for women and men (2019)
- The Law on mediation (2018)
- Law on public control (2018)
- Law on administrative procedures (2018)

**Human Rights**

As a member of the United Nations, Uzbekistan supports and implements all the main international instruments of the United Nations relating to the protection of human rights and freedoms, including UN Universal Declaration of Human Rights, Human Rights Council Resolution No. 30/15 on human rights and preventing and countering violent extremism, Convention on the Elimination of all Forms of Discrimination against Women among others.

Uzbekistan's State Policy on human rights is aimed at preventing violations or any restriction on human rights and freedoms and at establishing the necessary organizational, legal, social, economic, spiritual and moral foundations for the protection of human rights.

Gender-based violence, harassment, and exploitation

Over the past decade, the Government of Uzbekistan has implemented a number of legal reforms and interventions geared towards the protection of women’s rights and the elimination of GBV. An overview of the key executed initiatives to this end is provided in the table below.

**Table 18-1 Reforms and Initiatives for Protection of Women’s Rights and Support for GBV Victims**

| Intervention | Objectives |
|---|---|
| Establishment of the Law on Protection of Women from Harassment and Abuse (2019) | The national law provides for the protection of women from all forms of harassment and abuse. While violence against women is recognized in the Criminal Code of Uzbekistan, provisions for the registration, investigation, and prosecution of GBV are not prescribed in the Code.<br><br>In furtherance of the Code, the Act established specific procedures for the management of GBV cases for relevant law enforcement authorities and mandates the provision of medical, psychological, legal, economic, and humanitarian support to victims of GBV. In 2020, systems for the issuance of protection orders for victims of GBV were fully instituted across the country. |
| Establishment of the Resolution on Measures to Improve the System of Social Rehabilitation and Adaptation, and the Prevention of Domestic Violence (2018) | The Resolution No. PP-3827 of the Head of the State dated 07.02.2018 "On measures to improve the system of social rehabilitation and adaptation, as well as the prevention of domestic violence" identifies priority areas for improving the system of social rehabilitation and adaptation, prevention of family and domestic violence, and approved the program of practical measures to improve the system of social rehabilitation and adaptation, as well as the prevention of domestic violence.<br>The Resolution provides for the following key measures: |

| Intervention | Objectives |
|---|---|
| | 1. Priority areas include improving the social system of rehabilitation, adaptation and preventative measures against domestic violence.<br>2. A program of practical measures to improve the system of social rehabilitation, adaptation and prevention of domestic violence.<br>3. A Centre for Rehabilitation and Adaptation for victims of violence, as well as the prevention of suicides in territorial divisions of the Women's Committee of Uzbekistan.<br>4. Public "hot line" on number “1146”, for provision of emergency psychological, psycho-therapeutic and legal support and information about organizations that may provide additional assistance. |

### 18.1.2 Lenders Requirements

**IFC**

IFC Performance Standard 4 establishes requirements to safeguard local communities from potential risks associated with the Project including impacts associated with introduction of communicable disease, site access and operation, material use etc. The key objectives of PS4 are:

- To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances.
- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

World Bank Good Practice Note on Addressing Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) in Investment Project Financing Involving Major Civil Works

The World Bank GPN is structured around three key steps that cover project preparation and implementation. These steps include:

- Identifying and assessing the risks of SEA/SH, including social and capacity assessments.
    - Undertaking social risk assessment of community-level risks.
    - Assess capacity and availability, safe and ethical services of survivors.
    - Review ability of the client to respond to SEA/SH risks.
    - Rate project for overall risk using several Bank tools including the SEA/SH Risk Assessment Tool.
    - Establish procedures to review and update risk assessment during the project implementation.
- Establishment of mitigation, reporting and monitoring measures.
    - Based on risks identified, identify the corresponding mitigation measures and implement actions suggested to mitigate project related risks of GBV in the project area.
    - Monitor effectiveness of the mitigation measures and adapt as appropriate.
- Project response actions for GBV cases.
    - Provide essential services for survivors.

- Report case through the GM as appropriate keeping survivor information confidential and anonymous.
- Document and close cases brought through the GM.

IFC, EBRD and CDC Group[93] Guidance on Gender Based Violence and Harassment (GBVH)

According to the guidance, addressing GBVH can build relationships and provide a Project with a social license to operate in communities. This can result from regular dialogue to understand and track project GBVH risks as well as the effective use of measures to prevent and respond to GBVH. In addition, it broadens the pool of potential workers that companies can draw upon, including women workers from nearby communities because of lower perceived risk of GBVH.

*IFC Guidance on Gender Based Violence and Harassment (GBVH) in the Construction Sector*

The assessment, prevention, monitoring and response measures in regards to GBVH should be underpinned by the following principles:

- Survivor Centred: The rights of GBVH survivors need to be consistently prioritised and used as the starting point for all decisions on efforts to assess, prevent, monitor and respond to GBVH.
- Safe: Survivors, witnesses and those who report and seek to address GBVH can be at risk of retaliation, including threatening and violent behaviour, often from those who do not like their position of power being challenged. Companies should prioritise the safety of those who have experienced, witnessed and reported GBVH.
- Context specific: All measures need to be rooted in a thorough understanding of the local context. Investors and companies should understand the legal and social context and identify the support mechanisms that are in place.
- Collaborative: Companies should seek inputs from a range of internal and external stakeholders to increase the likelihood of broader buy-in and make GBVH prevention more effective.
- Inclusive: Companies should recognise the heightened risks of GBVH faced by certain groups who are subject to discrimination and marginalisation. High risk groups often include people with disabilities, single parents, migrants and ethnic minorities and sexual and gender minorities. The system should also account for illiterate or non-literate people who may not be able to access written information on GBVH reporting mechanisms.
- Integrated: Processes, efforts to assess, prevent, monitor and respond to GBVH needs to be integrated as much as possible into existing processes and management systems, such as occupational health safety, security management systems, ESMS and human resources (HR) policies and procedures.
- Non-discriminatory: All survivors need to be listened to and treated equally and promote diversity in the work place.
- Well-informed: Companies should draw on relevant expertise when developing prevention and response measures. The grievance mechanism and investigation procedures should be set up to ensure they are appropriate, relevant and safe in the local context.

According to the guidance, the benefits of addressing GBVH include:

[93] CDC Investment Group has formally renamed as "British International Investment (BII)" on 4th of April 2022. BII's mission is to support the building of businesses throughout Africa and South Asia, to create jobs, and to make a difference to people's lives in some of the world' poorest places.

- Improves workers' physical and emotional wellbeing and strengthens occupational health and safety.
- Avoids reputational damage, financial risks and legal liabilities for companies, investors and construction contractors.
- Builds relationships and social license to operate in communities. This can result from regular dialogue to understand and track project GBVH risks as well as the effective use of measures to prevent and respond to GBVH.
- Broadens the pool of potential workers that companies can draw upon, including women workers from nearby communities because of lower perceived risk of GBVH.

*IFC Good Practice Handbook: Use of Security Forces: Assessing and Managing Risks and Impacts*.

The Project shall be implemented in alignment with the requirements set out in the International Finance Corporation (IFC) Performance Standards and associated guidance, including the IFC Good Practice Handbook: Use of Security Forces: Assessing and Managing Risks and Impacts. These requirements form part of the Lenders' Environmental and Social (E&S) obligations and are intended to ensure that any engagement of security personnel whether public or private is undertaken in a manner that respects human rights, maintains public safety, and minimises risks to affected communities and workers.

Consistent with Performance Standard 4 (Community Health, Safety and Security) of International Finance Corporation, the Project is required to assess potential security-related risks and implement appropriate mitigation and management measures proportional to the level of risk identified.

Key expectations under the Lenders' Requirements include:

- **Risk Assessment and Proportionality:**
  Undertake a structured security risk assessment to identify potential threats, including risks of excessive use of force, community tensions, and human rights violations, ensuring that security arrangements are proportionate to the nature, scale, and context of the Project.
- **Security Management Framework:**
  Develop and implement a Security Management Plan that defines the roles, responsibilities, and expected conduct of security personnel, including both public security forces and private security providers, where applicable.
- **Human Rights Due Diligence:**
  Ensure that all security personnel are trained in human rights principles, including the appropriate use of force, de-escalation techniques, and respect for community rights, in line with the IFC Good Practice Handbook.
- **Community Interface and Grievance Mechanism:**
  Establish clear protocols for interaction between security personnel and local communities, supported by an accessible grievance mechanism to allow for the reporting and resolution of security-related incidents.
- **Incident Reporting and Accountability:**
  Implement procedures for documenting, reporting, and investigating all security-related incidents, including allegations of abuse or misconduct, with clear escalation pathways and corrective action measures.
- **Coordination with Public Security Forces:**
  Where public security forces are deployed, ensure that their engagement is consistent with applicable national law and international human rights standards, and

that roles and expectations are clearly defined through formal agreements or Memoranda of Understanding (MoUs), where feasible.

- **Monitoring and Continuous Improvement:**
  Conduct periodic reviews of security performance and associated risks, incorporating lessons learned and stakeholder feedback to strengthen management approaches over time.

**EBRD**

Environmental and Social Requirements 4 establishes the importance of avoiding or mitigating adverse health and safety impacts and issues associated with project activities on workers, project affected communities and consumers. The objectives of EBRD PR4 are:

- To protect and promote the safety & health of workers by ensuring safe and healthy working conditions and implementing a health and safety management system, appropriate to the relevant issues and risks associated with the Project.
- To anticipate, assess and prevent or minimise adverse impacts on the health and safety of project affected communities and consumers during the project lifecycle from both routine and non-routine circumstances.

ESR 4 also required clients to identify and assess project related risks and adverse impacts to the health and safety of the potentially affected communities and develop protection, prevention and mitigation measures proportionate to the impacts and risks and appropriate to the stage size and nature of the project. In addition, the client is required to cooperate with the relevant authorities and other stakeholders, as appropriate, on mitigation measures and plans. These measures are required to be consistent with the mitigation hierarchy approach and voluntary principles on security & human rights.

## 18.2 Scoping

During the scoping phase, the ESIA identified and assessed the reasonably foreseeable risks to community health, safety, and security associated with the Project. Based on these findings, appropriate management provisions and corresponding mitigation measures were defined to avoid, minimize, or manage such risks. The ESIA also highlighted the importance of having adequate preparedness and response arrangements, which are detailed in project-specific Emergency Preparedness and Response Plans (EPRPs) for both the construction and operational phases.

## 18.3 Baseline Conditions

From a community health, safety, and security (CHSS) perspective, the Project is situated in an area characterised by low-density rural settlements, agricultural land use, and limited industrial activity. Baseline conditions therefore reflect a setting with relatively low ambient health and safety risks, but with communities that may be sensitive to large-scale infrastructure development due to their reliance on land, local infrastructure, and traditional rural livelihoods.

The Project site is adjacent to the village of Yangitosh to the south, with several small villages located nearby. A small residential community is also present in the northeastern part of the Project site, a substantial portion of which lies within the Project footprint. These communities represent the primary receptors for community health, safety, and security considerations. Settlements in the wider Project Area of Influence (AoI) are characterized by low-rise housing, reliance on local roads, and limited access to advanced emergency and healthcare infrastructure. Community safety conditions are largely shaped by rural lifestyles, agricultural activities, and informal movement patterns rather than high traffic or industrial risks.

### 18.3.1 Community Health Baseline

Uzbekistan has recently undertaken comprehensive health system reforms supported by specific legislation and government resolutions aimed at strengthening community-level health services, access to care, and public health outcomes.

- The primary legislative framework for the healthcare system is established under the Law of the Republic of Uzbekistan on Health Care (No. 26), which defines the structure of the state healthcare system, roles of governance bodies, and principles of health protection, service delivery, and preventive care. The law was updated in 2024-2025 to align with reforms, including broader roles for healthcare institutions and providers in prevention and primary care[94].
- The Presidential Decree No. UP-88 dated 19 May 2025, "On Measures for the Consistent Continuation of Healthcare Reform Through the Improvement of the System and Principles of Medical Service Delivery to the Population," sets out a new healthcare organization model aimed at expanding primary care access, strengthening family medicine, and improving quality of services[95].
- Health statistics collection is regulated by the Law on State Statistics (2002, revised 2012), Cabinet of Ministers Decree No.183 and No.351, and Ministry of Health Order No.287. These legal instruments assign responsibilities for routine collection, processing, and reporting of health data including morbidity, mortality, service availability, and outcomes. The State Committee on Statistics and the Institute of Health and Medical Statistics implement these requirements.

Uzbekistan's health system remains predominantly publicly financed and nominally free at the point of use for basic services, with ongoing reforms to introduce a State Health Insurance Fund (SHIF) and expand the scope of services covered under the guaranteed benefit package. This includes reimbursement for medicines prescribed via community pharmacies under the 2024 Cabinet Resolution No.619.

Baseline community health conditions in the AoI are typical of rural and peri-urban areas of Tashkent Province. Access to healthcare is generally provided through local clinics and district-level facilities, with more specialised medical services available in Tashkent city. Communities are not currently exposed to significant sources of industrial pollution, excessive noise, or hazardous emissions. Key baseline health determinants include:

- Rural living conditions with dependence on agricultural livelihoods;
- Use of open irrigation systems, which may pose risks related to water safety and vector-borne diseases;
- Limited exposure to high traffic volumes or aviation-related health stressors at present.

Focus Group Discussions (FGDs) were conducted across multiple mahallas in the project's area of influence to understand community perceptions and lived experiences related to health services, public health conditions, safety, security, and potential project related risks. Overall, the discussions revealed spatially uneven access to health services, generally low levels of serious crime, and limited but emerging concerns regarding construction-phase impacts, particularly related to traffic, road conditions, and environmental stressors.

Across the mahallas, community health conditions were described as mixed, with gradual improvements but clear disparities in access and service quality. In Tarakkiyot, residents have reasonable access to primary healthcare and pharmacies, with good emergency response where road conditions allow; seasonal respiratory illnesses were most common, and

[94] https://natlex.ilo.org/dyn/natlex2/natlex2/files/download/47096/UZB-47096.pdf

[95] https://vakhidovlaw.com/en/resources/news/legislative-life-sciences-updates-uzbekistan-june-2025

participants requested better staffing and equipment. Beruniy benefits from a local polyclinic and ambulance services, though access to specialized care requires travel; concerns were raised about non-communicable diseases and pollution-related health risks, despite overall satisfaction with services. Surum faces significant service gaps, lacking local health facilities and relying on distant, costly, and unreliable transport; environmental degradation and poor sanitation exacerbate health risks, resulting in generally low service ratings. Yangiyul shows a mixed situation, with concerns over waterborne diseases and long emergency response times, particularly affecting vulnerable groups, but basic health services were largely viewed as satisfactory despite limited proximity and frequency of care.

### 18.3.2 Community Safety and Traffic Conditions

Existing traffic levels within and around the Project site are low and largely associated with agricultural activities and local travel between villages. Roads are generally narrow, with limited signage and pedestrian protection measures. As a result, baseline safety risks are modest but include potential conflicts between vehicles, pedestrians, livestock, and agricultural machinery. The absence of large construction sites or industrial facilities means that communities currently have limited experience with heavy vehicles, construction traffic, or large workforces entering the area, which is relevant when assessing future changes to baseline safety conditions.

Perceptions of community safety and security across all FGDs were generally positive, with low levels of serious crime reported. In Tarakkiyot makhalla, participants described the area as relatively safe, although women noted occasional petty theft. Improved street lighting, infrastructure, and additional surveillance cameras were identified as priority measures to reduce minor crimes and accidents. Beruniy makhalla participants reported strong security conditions, with no serious crimes and only isolated domestic disputes. Satisfaction with security services was high, and no project related increase in crime was anticipated; concerns were limited to temporary construction related disturbances such as noise and road damage. In Surum makhalla, women reported comparatively higher theft incidents, particularly in seasonal dacha areas with frequent visitors. Despite this, participants acknowledged a general decline in crime and expressed satisfaction with police presence. Ongoing concerns relate to inadequate lighting, limited transport access, and potential health and safety risks linked to relocation to environmentally constrained areas. Yangiyul makhalla participants reported rare crime incidents, mainly low-frequency livestock thefts, typically resolved quickly. Strong community vigilance and effective police patrols were cited as key factors contributing to high satisfaction with local security services.

### 18.3.3 Gender-based Violence, Harassment & Exploitation

In this context, GBV, harassment, and exploitation risks at baseline are primarily associated with domestic and community-level dynamics rather than project-related activities. However, the planned scale of construction, the anticipated presence of a predominantly male workforce, and interaction between workers and local communities are relevant factors when considering baseline vulnerability and future risk pathways.

The Project is governed by the national legal framework of Uzbekistan, which has been significantly strengthened in recent years with respect to GBV:

- Law No. URQ-829 (11 April 2023)- On Amendments and Additions to Certain Legislative Acts for the Protection of the Rights, Freedoms and Legitimate Interests of Women and Children. This law introduced criminal liability for domestic violence, including physical, psychological, and economic violence, and strengthened survivor protection mechanisms.

- Criminal Code of the Republic of Uzbekistan – Article 126-1 Criminalises domestic violence and provides for custodial and non-custodial sentences.
- Code of Administrative Responsibility – Article 59-2. Establishes administrative liability for domestic violence and harassment, including fines and short-term detention.
- Law "On Protection of Women from Oppression and Violence" (2019). Provides the basis for protection orders, preventive measures, and state responsibilities for victim support.

These laws apply uniformly across urban and rural areas, including the Project AoI, and form the baseline legal protection framework for women, girls, and other vulnerable groups potentially affected by Project activities.

Understanding the baseline prevalence of gender-based violence (GBV), harassment, and related exploitation in the Project Area of Influence (AoI) is essential for assessing potential social risks associated with the Project, particularly during construction and operations. While nationwide and provincial data are available, disaggregated statistics at makhalla or district level (e.g., Urta-Chirchik and Kuyi-Chirchik) are limited, and under-reporting remains a recognized challenge. Nonetheless, national and regional patterns provide relevant insight into the likely baseline conditions facing communities in the Project region.

- According to Government reporting and national official statistics, tens of thousands of women in Uzbekistan apply for protection orders or report incidents of violence and harassment annually. In the first seven months of 2023 alone, 21,871 protection orders were issued to women who experienced violence or harassment, with approximately 84.7% involving perpetrators who were family members (e.g., husbands, in-laws)[96].
- Earlier Government figures indicate that in 2021, almost 39,343 complaints of harassment and violence against women were registered, with 87% of these cases occurring within family settings[97].

Government and independent reporting identify psychological and physical violence as the most frequently reported forms of GBV, followed by harassment and other types of abuse. Data presented to senior national bodies show that in 2024:

- Psychological abuse cases comprised the largest share of protection orders
- Physical abuse and harassment were also significant components of reported cases

These patterns are consistent with internationally recognised GBV typologies, where psychological and physical violence are commonly reported and associated with both individual harm and broader social impacts.

Available research suggests that domestic violence, particularly in its more severe forms, tends to be more prevalent in rural areas compared to urban centres, although under reporting is widespread across both contexts. Studies of court cases involving domestic violence found that a high proportion of such cases originate in rural settings, even where urban and rural populations are similar in size, and that severity of physical violence may be higher in rural areas. Given the rural nature of the Project AoI, this trend implies that domestic GBV may be a significant but under-represented issue among local households, even if formal reporting rates are low.

Focus group discussions (FGDs) were conducted with women in four makhallas i.e. Surum, Sergeli, Khalkhabad, and Beruniy within Kuychirchik and Urtachirchik districts to understand

[96] https://vox.today/48137/women-as-wives-how-uzbekistan-s-justice-system-fails-to-serve-women/?utm

[97] https://uzbekistan.un.org/sites/default/files/2024-05/GAS_Uzbekistan_Report_2024_final.pdf

perceptions and concerns related to community health and safety, with a focus on gender-based violence, harassment, and exploitation (GBVH).

Across all FGDs, women did not explicitly report experiences of GBVH. In Surum, participants noted that men were perceived as “hot-tempered and aggressive,” suggesting potential underlying tensions, but no direct disclosures of violence or harassment were made. Similarly, women in Sergeli, Khalkhabad, and Beruniy emphasized knowledge of their rights and self-protection, indicating awareness of personal safety, but did not provide specific GBVH cases.

Regarding support mechanisms, participants consistently relied on informal local networks such as mahalla structures, social workers, and, to a lesser extent, the police for conflict resolution. No dedicated GBVH services, crisis centers, or formal referral pathways were mentioned. In Sergeli, Telegram referrals and khokimiyat escalation were noted as trusted informal channels, whereas formal mechanisms, including police intervention, were underutilized. Strong social cohesion in Beruniy was highlighted as an informal protective factor, although it may limit open discussion of sensitive issues.

No dedicated GBVH referral pathways were reported, such as crisis centers, shelters, or specialized psychosocial or legal support services. Women in Khalkhabad emphasized awareness of their rights and expressed confidence in asserting themselves, stating “we know our rights and do not allow ourselves to be offended”. Women across several makhallas described strong social cohesion, with some noting that “we have practically become one family.”. Overall, the findings suggest limited awareness of specialized GBVH services and an absence of clearly articulated referral pathways within the project area.

Although women did not explicitly raise GBVH risks associated with the airport project, standard risk assessment considerations suggest that project activities including increased presence of external workers, heightened economic stress, and greater mobility during construction could increase opportunities for harassment in public spaces, workplaces, or transport areas. Therefore, integrating GBVH sensitive measures into project design is recommended. Potential measures include enhanced lighting, safe transportation options, awareness campaigns, and clear, confidential complaint mechanisms for women residents and workers.

In summary, while no direct GBVH cases were reported during the FGDs, the combination of informal support reliance, awareness of rights, and potential project-related risks underscores the need for proactive measures to safeguard community health and safety, particularly for vulnerable groups such as widows and persons with disabilities.

### 18.3.4 Health/Sanitary Protection Zone

A consultation letter (No. 2-681) was sent to the Committee for Sanitary and Epidemiological Welfare and Public Health on 12 February 2026 to seek guidance on the requirements for establishing a Health Protection Zone (HPZ) for the proposed airport project. The Committee provided a response clarifying the applicable national standards, requirements for sanitary protection zones, and related public health considerations.

The Committee provided comprehensive guidance on the establishment of Sanitary Protection Zones (SPZs) for airport infrastructure, emphasizing compliance with national sanitary-epidemiological norms and rules. This guidance is intended to ensure that airport development minimizes adverse impacts on nearby populations by controlling exposure to noise, emissions, and other environmental hazards. In particular, the Committee referred to Clause 50 of the Sanitary Rules, Norms, and Hygienic Standards No. 0339-16 (“Sanitary Rules and Norms for Planning and Development of Settlements in Uzbekistan”), which outlines specific requirements for airport siting, buffer distances, and operational safety.

**Sanitary Protection Zones (SPZs) for Airport Infrastructure**

- New airports must be located outside urban and rural settlements.

- The required distance from the aerodrome boundary to residential areas varies by aerodrome category:
    - Category A and B: 30 km
    - Category V: 20 km
    - Category G: 10 km
    - Category D: 5 km
    - Category YE: 5 km
- Noise propagation, runway orientation, and flight paths over populated areas must be carefully considered when determining these distances.

**Regulatory References**

- **Sanitary Rules, Norms, and Hygienic Standards No. 0339-16** – establishes key requirements for settlement planning near airports.
- **Sanitary Rules No. 0103-25** – provides additional guidance on SPZs, including buffer zones, land use restrictions, and measures to minimize exposure to environmental hazards.

**Purpose and Concepts of SPZs**

- SPZs aim to reduce exposure to atmospheric pollutants and physical factors to levels safe for residential areas.
- Protective or buffer zones help limit the impact of noise, emissions, and other operational factors on nearby populations.

**Key Requirements for Project Planning and Implementation**

- **Air Quality**: Sanitary Rules No. 0053-23 set permissible concentrations for harmful substances, microbial agents, and aeroions in residential areas.
- **Noise Levels**: Sanitary Rules No. 0008-20 define acceptable noise levels in residential buildings, public facilities, and recreational zones.
- **Radio-Technical Facilities**: Sanitary Rules No. 0019-21 provide requirements for the placement and operation of radio-technical structures within the 30 kHz–300 GHz frequency range.
- **Overall Sanitation and Hygiene**: Sanitary Rules No. 0103-25 specify general SPZ requirements to protect public health from chemical, biological, and physical hazards.

The delineation and validation of the HPZ/SPZ is informed by the findings of the Project's specialist environmental studies, including the operational aircraft noise assessment, air quality assessment, and aviation safety assessment undertaken as part of this ESIA. The assessment utilised recognized modelling methodologies to predict operational impacts under representative and worst-case operating scenarios, taking into account forecast aircraft movements, aircraft fleet mix, runway configuration, meteorological conditions, and other relevant operational assumptions.

Potential health exposure outside the regulatory SPZ/HPZ boundary will be evaluated by overlaying the predicted impact contours with the distribution of sensitive receptors identified during the baseline surveys. Sensitive receptors include residential areas, educational institutions, healthcare facilities, community facilities, and other locations where people may experience prolonged exposure.

Potential exposure will be assessed using:

- Predicted aircraft noise contours (including daytime, night-time and cumulative noise metrics where applicable);
- Predicted operational air quality concentrations for relevant pollutants (including $NO_2$, $PM_{10}$ and $PM_{2.5}$, as appropriate);
- Aviation safety protection zones and associated land-use compatibility requirements;

- Applicable Uzbek regulatory limits; and
- Relevant international guidance, including IFC Environmental, Health and Safety Guidelines and, where appropriate, World Health Organization guidance for environmental noise and air quality.

For the purpose of the ESIA, potential significant or chronic community health exposure will be considered where modelling predicts that operational impacts may exceed applicable regulatory standards or recognised international guideline values at sensitive receptors, or where repeated long-term exposure has the potential to result in material adverse health effects despite compliance with minimum regulatory buffer distances.

The final SPZ/HPZ boundaries and associated land-use restrictions will therefore be confirmed based on the outcomes of the specialist modelling studies and consultation with the relevant regulatory authorities. Where modelling demonstrates that sensitive receptors outside the regulatory boundary may remain exposed to elevated operational impacts, additional mitigation measures will be considered through the mitigation hierarchy. These may include operational controls, aircraft operational procedures, noise insulation programmes, land-use planning recommendations, monitoring programmes, or other appropriate measures to reduce residual community health risks.

Prior to commencement of operations, the final SPZ/HPZ will be submitted to the Agency for Sanitary and Epidemiological Welfare for review and approval in accordance with national requirements.

## 18.4 Area of Influence and Receptors

### 18.4.1 Area of Influence

The AoI for Community Health, Safety and Security encompasses the spatial extent within which the Project may directly or indirectly influence local communities, health systems, safety conditions, security arrangements, and social dynamics. For the greenfield airport development, the CHSS AoI includes the Project footprint, surrounding communities, and other areas where project-related activities or specialist assessments identify potential health, safety, security, or land-use impacts during the construction and operational phases.

The community health and safety related AoI is therefore not limited to a fixed radial distance and considers the areas potentially affected by the Project’s physical footprint, construction activities, associated facilities, proposed SPZ, Airport Safety Zone (ASZ), operational aircraft noise contours, and other impact zones identified through technical studies.

Based on the current assessment, the AoI includes communities located within and around the Project area, including immediate neighbouring settlements such as Yangitosh, to the south. It also includes key surrounding makhallas, namely Aranshi, Beruniy, Dustlik, Kim Pen Xva, Koshek, Surum, Sergeli, Taraqqiyot, Xalqobod, Yangiyul, and Yungichokli, which represent the primary community receptors considered for community health and safety imoacts and stakeholder engagement.

The AoI will be further refined during Project implementation based on the findings of ongoing specialist studies, including assessments of noise exposure, traffic and transport risks, emergency response requirements, community health risks, and other potential changes associated with airport construction and operation.

### 18.4.2 Receptors

**Table 18-2 E&S impact receptors – Community Health, Safety, and Security**

| Receptor | Sensitivity | Justification |
|---|---|---|
| Residents of Yangitosh village and northeastern Project site community | **High** | Directly adjacent to Project footprint, may experience displacement, construction traffic, noise, dust, and temporary workforce interactions. Limited access to advanced healthcare and emergency services increases vulnerability. |
| Residents of surrounding makhallas (Aranshi, Beruniy, Dustlik, Kim Pen Xva, Koshek, Surum, Sergeli, Taraqqiyot, Xalqobod, Yangiyul, Yungichokli) | **Medium** | Within the AoI, communities may experience indirect impacts associated with increased traffic, environmental stressors, aircraft operations, and potential pressure on local infrastructure and services. Sensitivity may vary among surrounding makhallas depending on their proximity to the Project, exposure to identified impact zones, and access to existing health and emergency services. |
| Vulnerable groups (women, children, elderly, persons with disabilities) | **High** | Limited baseline access to formal protection mechanisms; reliance on informal networks increases vulnerability to GBVH, harassment, and other safety risks, especially during construction phase. |
| Local roads and transport infrastructure | **Medium** | Narrow roads with limited signage and pedestrian protection are vulnerable to increased construction traffic and vehicle-pedestrian conflicts, affecting safety of local communities. |
| Agricultural livelihoods and farm workers | **Medium** | Disruption risk due to land use change, construction activities, and temporary workforce presence, potentially affecting health and safety in rural agricultural settings. |

## 18.5 Impacts, Mitigation, Management & Residual Impacts

### 18.5.1 Construction Phase

#### 18.5.1.1 Worker Influx, Community Health and Crime

The construction phase of the project is anticipated to require a peak workforce of approximately 5,000 personnel, comprising laborers, technical staff, and support personnel. The presence of a large, predominantly male workforce within rural communities in the Project Area of Influence (AoI) may influence community health, safety, and social dynamics. Potential effects include increased demand for local services, such as housing, water supply, sanitation, and healthcare; pressure on local roads, potentially resulting in congestion, minor accidents, or delays in emergency response; and social tensions stemming from cultural differences between incoming workers and local residents. Additionally, the influx of workers could elevate risks related to communicable diseases, dust and noise exposure, and temporary disruptions to water and sanitation systems. Women, children, and other vulnerable groups may also face heightened risks of petty crime, harassment, or gender-based violence and harassment (GBVH). Even in cases where formal crime rates remain low, community perceptions of reduced safety may occur.

To address these potential impacts, a suite of preventive and protective measures will be implemented. On-site worker accommodation will be provided with adequate water, sanitation,

healthcare, and recreational facilities to minimize unnecessary interactions with local communities. A strict Code of Conduct will be applied to all personnel, emphasizing acceptable behavior, zero tolerance for harassment, and compliance with local laws and cultural norms. Traffic management plans for construction vehicles will be enforced to reduce congestion and prevent conflicts with other road users. GBVH sensitive measures will include well-lit communal areas, safe transport options for women, awareness programs, and confidential grievance and reporting channels. Community engagement initiatives will ensure residents are informed about construction schedules, workforce movements, and reporting mechanisms.

Management measures will complement these mitigation actions, a Community Liaison Officer (CLO) will be appointed to monitor social interactions, address grievances, and maintain coordination with local communities, while security personnel will ensure adherence to safety and GBV protocols. Regular health surveillance and monitoring will be conducted for both workers and surrounding communities, overseen by designated health and safety officers, to ensure compliance with occupational and community health standards. Ongoing liaison meetings will support continuous assessment of social tensions, and gender-sensitive monitoring will maintain the protection of women and other vulnerable groups throughout the construction phase.

With these mitigation and management measures in place, residual impacts on community health, safety, and security are expected to be low to moderate. Remaining impacts are likely to be limited to minor traffic congestion, temporary social adjustments, localized increases in demand for health services, and minor, manageable safety concerns. These impacts will be continuously monitored and addressed through established grievance and reporting mechanisms.

#### 18.5.1.2 Public/Community Safety

Baseline conditions indicate generally low levels of serious crime, modest traffic volumes, and limited exposure to industrial hazards. However, rural road networks are narrow, lack pedestrian protections, and are primarily designed to support local agricultural activities, making them sensitive to increased vehicle movements. Focus Group Discussions (FGDs) conducted across the Area of Influence (AoI) confirmed that community perceptions of safety are generally positive, though minor concerns exist regarding petty theft, inadequate lighting, and potential hazards for vulnerable groups, including women, children, and the elderly.

During construction, the Project may affect public and community safety through several potential pathways. Increased traffic volumes from construction vehicles and equipment could lead to vehicle-pedestrian conflicts, accidents involving livestock, and congestion on narrow rural roads, while temporary disturbances from noise, dust, and heavy machinery operations may create localized health and safety risks, particularly for residents near the Project footprint. The presence of a predominantly male workforce, movement of materials, and temporary population influx could also elevate the risk of petty crime or minor conflicts, and vulnerable groups such as children, the elderly, and persons with disabilities may face heightened hazards due to limited road signage, poor lighting, and restricted access to emergency services.

To mitigate these impacts, the Project will implement a range of engineering, operational, and community-based measures, including a Traffic Management Plan to regulate vehicle routes, speeds, and pedestrian segregation; upgrading local roads with signage, speed controls, pedestrian crossings, and street lighting; community awareness campaigns in coordination with mahalla leaders; enforcement of workforce codes of conduct; enhanced emergency preparedness through coordination with local healthcare facilities and provision of on-site first aid; and installation of surveillance cameras and lighting at key access points, supported by collaboration with local law enforcement. Following the implementation of these measures, residual impacts on community safety are expected to be low to moderate and largely

temporary, primarily associated with construction activities. Minor inconveniences, such as temporary road delays or noise disturbances, may persist but are expected to be effectively managed through the Traffic Management Plan, ongoing community engagement, and monitoring.

**Construction Traffic Management Framework**

Given the scale of the proposed airport development, construction-related traffic represents one of the key community health and safety risks associated with the Project. Construction activities will require substantial movement of bulk materials, including fill materials, aggregates, concrete, equipment, and other construction supplies. These activities have the potential to significantly increase heavy vehicle movements on existing rural roads, which are currently characterised by relatively low traffic volumes, limited pedestrian protection infrastructure, and mixed use by vehicles, pedestrians, agricultural machinery, and livestock.

Construction traffic movements, particularly associated with soil transport and other civil works, are expected to commence in early 2027. Initial traffic generation for the landside works is currently estimated at approximately 150 trips per day, with airside works potentially generating approximately twice this volume. Landside traffic is expected to increase to approximately 550 trips per day by summer 2027 and remain at this level for approximately 12 months. These estimates will be refined as construction planning and logistics arrangements are further developed.

To manage these risks, a Construction Traffic Management Plan Framework will be developed as part of the Project ESMS. The Framework document will establish the overarching principles, minimum requirements, and responsibilities for traffic management during construction and will provide the basis for preparation of detailed contractor-specific Traffic Management Plans by the EPC Contractors. The Traffic Management Framework and detailed Traffic Management Plan will be prepared no later than December 2026, allowing the detailed traffic assessment and management measures to be established before the main construction traffic movements commence.

The Traffic Management Framework and subsequent Traffic Management Plan will include detailed analysis of anticipated construction traffic movements and assessment of alternative transport and logistics options, including the feasibility of using railway for material transportation where practicable. The assessment will be updated as the necessary construction, logistics and transport information becomes available.

The CTMP Framework will define:

- anticipated construction traffic generation, including heavy vehicle movements and peak traffic periods;
- identification and assessment of proposed haul routes and access roads;
- assessment of alternative material transport options, including the potential use of rail, where practicable;
- requirements for traffic risk assessments and road safety audits;
- roles and responsibilities of the Project Company, EPC Contractors, Public Partner, and relevant authorities;
- requirements for vehicle management, including driver competency, speed control, vehicle inspection, and journey management;
- measures to protect communities, including pedestrian safety, livestock management, school-zone safety, and access continuity;
- requirements for emergency vehicle access and coordination with local emergency services;

- requirements for stakeholder engagement and notification of communities regarding construction traffic schedules and temporary disruptions;
- monitoring indicators, incident reporting requirements, and corrective action procedures.

#### 18.5.1.3 Public/ Community Security

The construction phase of the project introduces several potential public and community security impacts, particularly given the rural and low-density context of the Project Area of Influence (AoI). Baseline conditions indicate generally low crime rates, modest traffic volumes, and reliance on informal community structures for safety and social cohesion. However, the introduction of a large-scale construction workforce, heavy vehicles, and temporary infrastructure changes could temporarily alter these conditions.

**Table 18-3 Potential Impacts: Community Security**

| Impacts | Description |
|---|---|
| Increase in Crime and Anti-Social Behaviour | The introduction of a predominantly external construction workforce may elevate the risk of petty theft, harassment, and opportunistic crimes. While baseline levels of serious crime are generally low, focus group discussions highlighted vulnerabilities among women and seasonal visitors in specific makhallas (e.g., Surum), suggesting a potential rise in minor security incidents. |
| Traffic-Related Risks | Construction activities will involve the movement of heavy machinery, trucks, and workforce transport, which could conflict with local traffic, pedestrians, and livestock on narrow rural roads. The absence of sufficient road signage, lighting, and pedestrian infrastructure may further increase the likelihood of accidents and minor injuries. |
| Disturbances to Community Order and Safety | Noise, dust, and the movement of construction equipment may disrupt daily life and create stress or minor conflicts within communities, particularly in close-knit rural settlements where routines are closely tied to agricultural activities. |
| Gender-Based Vulnerability | Although baseline gender-based violence and harassment (GBVH) incidents are primarily domestic, the presence of an external workforce may increase opportunities for harassment in public areas and along transport routes. This underscores the need for specific protective measures for women, children, and other vulnerable groups. |
| Pressure on Local Security Services | Local law enforcement and informal community safety mechanisms may experience increased demand due to higher population density and traffic associated with construction. Limited capacity may constrain their ability to respond promptly to project-related incidents. |

To mitigate potential community security impacts during construction, the Project Company/SPV will implement a comprehensive Security Management Plan and associated Environmental and Social Management System (ESMS) procedures applicable to all Project activities. The ESMS will establish clear governance, authority, and interface arrangements between the landside EPC contractor, the airside EPC contractor (to be appointed by the relevant Ministry), and any public-sector security personnel operating within the Project area. The SPV will retain overall responsibility for environmental and social performance and will oversee coordination and compliance through formal interface management procedures, including reg-

ular coordination meetings, joint inspections, shared reporting protocols, and integrated incident management processes. Particular attention will be given to areas of interaction between contractors and public authorities, including security management, emergency preparedness and response, occupational health and safety, traffic management, stakeholder engagement, and incident reporting and investigation, in accordance with IFC PS requirements.

Project-related security personnel engaged during both construction and operation will be unarmed. Any interactions with public security authorities will be governed through defined protocols that clarify roles, responsibilities, communication channels, escalation procedures, and incident reporting requirements to ensure the protection of workers, communities, and Project assets while respecting human rights principles. The requirement for unarmed security personnel will be incorporated into all EPC, O&M, and security service contracts, as well as the Project Security Management Plan and relevant contractor ESMS documentation. Compliance with this requirement will be monitored by the Project Company/SPV through contractor supervision, periodic audits, and routine performance monitoring. Any proposed deviation from this requirement shall require prior written approval from the Project Company and shall be managed in accordance with applicable lender requirements and national legislation.

Risk assessments will be undertaken for mahallas within the Area of Influence (AoI), and traffic management measures will be implemented, including controlled access routes, dedicated construction vehicle corridors, traffic signage, speed restrictions, and community awareness campaigns on construction traffic schedules to minimise vehicle-pedestrian-livestock conflicts. A workforce Code of Conduct will be enforced across all contractors and subcontractors to prohibit anti-social behaviour, harassment, discrimination, and gender-based violence and harassment (GBVH), supported by mandatory induction and refresher training on local laws, cultural sensitivities, community relations, and grievance reporting mechanisms.

Appropriate temporary or permanent lighting will be provided in high-traffic and public areas to enhance visibility and reduce security risks, alongside safe pedestrian crossings where required. Coordination with local authorities and mahalla structures will support timely communication, reporting, and response to security-related incidents. GBVH-sensitive measures will include confidential reporting channels, survivor-centred response procedures, awareness programmes, and appropriate transport and access arrangements to enhance safety for women and vulnerable groups.

Regular stakeholder engagement activities will be undertaken to communicate construction schedules, traffic management arrangements, safety measures, and grievance mechanisms. Management and monitoring measures will include incident tracking and investigation, appointment of Community Liaison Officers, periodic audits of security, traffic, and workforce conduct measures, joint contractor reviews, and coordination with local emergency and health services. Through implementation of these measures and effective coordination between the SPV, EPC contractors, and public authorities, residual community security impacts are anticipated to be low to moderate, temporary, and localised, with risks associated with petty crime, traffic incidents, and GBVH managed through ongoing monitoring, stakeholder engagement, and corrective action processes.

#### 18.5.1.4 Gender-Based Violence, Harassment, and Sexual Exploitation & Abuse (GBVH/SEA)

The construction phase of the Project represents a period of increased social interaction, workforce mobility, and economic activity within the Project's Community Health, Safety and Security AoI. While baseline assessments indicate that existing GBVH/SEA risks are primarily associated with domestic and community contexts, construction activities may introduce additional risk pathways. These may arise from the influx of a predominantly male workforce, worker-community interactions, increased traffic movements, temporary worker accommodation, and associated socio-economic changes.

**Table 18-4 Potential Impacts: GBVH/SEA**

| Impacts | Description |
|---|---|
| Increased risk of harassment or exploitation in public spaces | Higher workforce presence, movement along local roads, and interaction with community members may increase the opportunity for verbal, psychological, or sexual harassment, particularly for women, children, and other vulnerable groups. |
| Pressure on informal protection mechanisms | Local reliance on mahalla structures, social workers, and limited police support may be insufficient to address incidents linked to construction activities, creating gaps in immediate response and reporting. |
| Heightened domestic stress and potential for intra-household violence | Economic shifts, disruption to livelihoods, or perceived inequities in opportunities for women or youth may exacerbate domestic tensions, potentially increasing the risk of domestic violence. |
| Limited access to formal GBVH support services | Absence of dedicated GBVH referral pathways, crisis centers, or specialized healthcare for survivors within the AoI may delay or impede reporting and protection. |
| Vulnerability of specific groups | Widows, persons with disabilities, and women with limited mobility may face heightened risks due to reduced visibility, limited social support, and increased exposure to construction-related hazards. |

To proactively address potential risks related to gender-based violence, harassment, and sexual exploitation and abuse (GBVH/SEA) during construction, the Project will implement a comprehensive set of mitigation and management measures. All construction personnel, including subcontractors, will be required to comply with a formal Code of Conduct that explicitly prohibits GBVH/SEA and clearly defines sanctions and disciplinary actions for non-compliance. Mandatory awareness and sensitization training will be delivered to workers, supervisors, and management staff to ensure understanding of acceptable behavior, legal obligations, and consequences of misconduct. Community engagement will be strengthened through the establishment of clear, confidential, and accessible reporting channels for GBVH/SEA incidents, available to both local residents and the workforce. Information on legal rights, available support services, and project grievance mechanisms will be disseminated through community meetings, printed materials, and appropriate local communication channels to promote awareness and reporting.

In parallel, infrastructure related measures will be implemented to reduce exposure to risk, including improved public lighting along frequently used pedestrian routes, near worker accommodations, and at construction access points, as well as the provision of safe transport arrangements to limit vulnerability during travel. The Project will work closely with local mahallas, social workers, and law enforcement authorities to strengthen local response capacity and ensure coordinated handling of incidents. Where necessary, survivors will be supported through access to formal referral pathways, including healthcare, legal assistance, and psychosocial support services available in Tashkent city. A project-level GBVH/SEA monitoring system will be established to track incidents, responses, and emerging trends, and the Grievance Redress Mechanism (GRM) will be designed to be GBVH sensitive, allowing anonymous reporting and ensuring timely, confidential follow-up.

Effective management of GBVH/SEA risks will require strong coordination between Project management, contractors, and community stakeholders. A dedicated GBVH/SEA focal point will be appointed within the Project's Health, Safety, and Security team to oversee implementation of mitigation measures and ensure accountability. GBVH/SEA requirements will be embedded into contractor agreements, supported by periodic audits and corrective actions where gaps are identified. Ongoing consultation with community representatives,

including women's groups and advocates for vulnerable populations, will be maintained to identify emerging risks and adapt measures as needed. In addition, all construction sites will be required to have clear emergency response procedures for GBVH/SEA incidents, including access to immediate medical care, safe accommodation, and referral to law enforcement or protection services where appropriate.

With the consistent and effective implementation of these mitigation and management measures, residual GBVH/SEA impacts during construction are expected to be low to medium. Although the influx of a large construction workforce may increase the potential for harassment or exploitation, proactive interventions such as workforce training, improved lighting and transport, confidential reporting mechanisms, and strengthened local support networks are expected to significantly reduce risks to women, children, and other vulnerable groups. Any remaining risks are anticipated to be limited to isolated or minor incidents, which can be effectively managed through monitoring, prompt reporting, and rapid response procedures, with the likelihood of severe or systemic GBVH/SEA impacts considered low under a well-managed construction program.

#### 18.5.1.5 Physical and Economical Displacement

Construction of the Project will require land acquisition and site clearance activities that will result in physical displacement of a defined number of Project-Affected Households (PAHs). Based on the census and socioeconomic survey, a total of 65 households, comprising an estimated 376 individuals, are expected to be affected. Approximately 96% of PAHs are located within Urtachirchik District, with the remaining 4% in Kuyichirchik District. Please refer to Chapter No. 16 for the chapter on Land Acquisition for further information.

Physical displacement during the construction phase may give rise to a range of notably psychosocial stress and anxiety associated with relocation, loss of familiar living environments, and uncertainty regarding resettlement outcomes, which can adversely affect mental health and overall well-being. Temporary disruption to access to healthcare, education, and social services may occur, with disproportionate effects on vulnerable groups such as the elderly, women-headed households, children, and persons with disabilities. The relocation period may also increase safety risks due to exposure to construction activities, the use of temporary or unsafe access routes, and adjustment to unfamiliar surroundings at relocation sites. In addition, the displacement process can weaken social cohesion and disrupt informal support networks that are particularly important in rural, mahalla-based communities for day-to-day safety monitoring, conflict resolution, and mitigation of gender-based violence and harassment risks.

Alongside physical displacement, economic displacement impacts may affect households whose livelihoods are closely linked to agricultural land, home-based activities, or proximity to local markets and transport routes. During construction, affected households may experience temporary or permanent loss of access to productive land and assets, leading to reduced household income and food security, as well as interruptions to informal economic activities such as small-scale farming, livestock rearing, and home-based enterprises. Relocation may also result in increased household expenditures, including higher transport costs and reduced affordability or accessibility of essential services, particularly where relocation sites are located further from existing economic and social infrastructure. These impacts are especially relevant within the Project Area of Influence, where baseline conditions are characterised by limited livelihood diversification, a strong reliance on land-based income sources, and uneven access to services, collectively increasing community sensitivity to displacement related shocks.

To address construction-stage physical and economic displacement risks in line with national requirements and international good practice, the Project will implement a comprehensive package of mitigation and management measures primarily through a Resettlement Action Plan (RAP). The RAP will ensure that all physically and economically displaced households are identified, consulted, and compensated at full replacement cost prior to the

commencement of construction. Relocation will be undertaken in a phased and planned manner to avoid sudden displacement and to allow affected households sufficient time to prepare for transition. Replacement housing and/or cash compensation will be provided to ensure relocated households have safe, habitable, and secure living conditions with appropriate tenure security.

Community health and well-being considerations will be addressed through pre-relocation health screening and needs assessments, with particular attention to vulnerable individuals requiring continuity of care. The Project will coordinate with local health authorities to ensure uninterrupted access to primary healthcare services during and after relocation, and targeted psychosocial support and counselling will be provided through local social services and mahalla structures to manage stress and anxiety associated with displacement. Safety and security risks will be mitigated through the establishment of safe relocation and access routes, segregated from construction traffic where feasible, clear communication of construction schedules, restricted areas and safety protocols, and enhanced community policing and grievance monitoring during relocation periods to address safety concerns and prevent conflicts.

To mitigate economic displacement, the Project will implement livelihood restoration measures tailored to affected households, including land-for-land options where feasible, agricultural input support, skills training, and transitional income assistance. Eligible displaced persons will be given priority access to construction-related employment opportunities, subject to skills and safety requirements, and household income restoration will be monitored to ensure livelihoods are restored to, or improved beyond, pre-project levels. Continuous stakeholder engagement will be maintained through regular consultation with affected households and transparent disclosure of entitlements, timelines, and support measures, supported by a project-level Grievance Redress Mechanism (GRM) that is accessible, confidential, and responsive, with specific provisions for vulnerable groups and women.

With the effective implementation of these measures, residual impacts related to physical and economic displacement during the construction phase are expected to be low to moderate and largely temporary. Physical displacement impacts are anticipated to reduce to low residual significance where housing quality, service access, and tenure security at relocation sites are equivalent to or better than pre-project conditions, while economic displacement impacts are expected to diminish as livelihood restoration measures take effect and households re-establish income-generating activities. Residual CHSS risks related to stress, safety, and social cohesion are expected to remain manageable and localized, provided that engagement, monitoring, and adaptive management are sustained throughout the construction period.

#### 18.5.1.6 Risks to Vulnerable Groups

Vulnerable groups can be impacted by the Project impacts more disproportionately than other groups. In addition, they can experience barriers to participate in project consultations processes and access to information. As such Vision Invest/Project Company and the EPC Company will ensure that these groups are engaged in consultations and provided with relevant information in a format and medium that is easily understood i.e., through one-on-one groups, door to door for the disabled or elderly etc.

The influx of a temporary construction workforce, increased vehicle movements, and changes to local environments may heighten exposure to safety and social risks. Increased heavy vehicle traffic on narrow rural roads may elevate the risk of accidents involving pedestrians, cyclists, children, elderly persons, and persons with reduced mobility. Poorly lit areas and informal movement routes commonly used in rural settlements may further increase these risks.

Women and girls may experience heightened vulnerability to harassment, intimidation, or exploitation in public spaces due to increased interaction with external workers, particularly in

areas with limited lighting, weak transport connectivity, or near worker movement corridors. Although no GBV or harassment cases were explicitly reported during baseline FGDs, national data indicate that domestic and community-level GBV remains prevalent, particularly in rural areas, suggesting a latent vulnerability that could be exacerbated by construction-related stressors.

Children may be exposed to increased risks related to road safety, unauthorized access to construction zones, and environmental hazards such as dust and noise. Elderly persons and persons with disabilities may face difficulties accessing health services or moving safely due to road damage, traffic congestion, or temporary obstruction of access routes.

With respect to ethnic minorities, the Project AoI includes makhallas with diverse populations, including minority groups such as ethnic Koreans (Koryo-saram), Russians, Tajiks, and other smaller ethnic communities. While there is no evidence of systematic discrimination or exclusion at baseline, ethnic minority households may face indirect risks if project communications, consultations, or grievance mechanisms are not accessible in appropriate languages or culturally sensitive formats. Limited proficiency in Uzbek or Russian, reliance on informal livelihoods, or weaker representation within local decision-making structures could increase the likelihood of misunderstanding, exclusion from project benefits, or reduced access to grievance redress.

To mitigate construction-stage risks to vulnerable groups, the Project will apply a precautionary and inclusive approach consistent with national legislation and international good practice. Measures will include traffic and road safety controls such as designated haul routes, speed limits, warning signage, and trained traffic marshals near settlements; physical safety measures including secure fencing, clear no-entry demarcation, and community awareness on construction hazards; and gender-sensitive actions, notably mandatory worker Codes of Conduct prohibiting harassment and exploitation, supported by clear disciplinary procedures. Worker accommodation and movement will be managed to minimize unnecessary interaction with local communities, while targeted community outreach—using culturally appropriate formats and local languages where needed—will ensure women, elderly persons, persons with disabilities, and ethnic minority households are informed of construction activities, risks, and support options. An inclusive and confidential grievance mechanism will be available to all community members, complemented by close coordination with mahalla committees, social workers, and local authorities to identify and support vulnerable households.

These measures will be implemented through the Construction Environmental and Social Management Plan (CESMP) and associated sub-plans, including traffic management, occupational health and safety, community engagement, and GBV prevention. Management actions will include appointing a Community Liaison Officer, training contractors on community health and safety, GBV prevention, non-discrimination, and cultural sensitivity, monitoring community complaints and incidents with a focus on vulnerable groups, coordinating with local health, police, and social services, and periodically reviewing and adapting measures based on monitoring outcomes and community feedback. With effective implementation, residual impacts on vulnerable groups during construction are expected to be low and temporary. Traffic and nuisance impacts should remain localized, and risks of harassment, exploitation, or exclusion including for women and ethnic minorities are anticipated to be low, provided that Codes of Conduct, grievance mechanisms, and inclusive engagement measures function effectively. Continuous monitoring and adaptive management will ensure that any emerging risks are promptly identified and addressed.

**Table 18-5 Community Health Safety: Impact Significance, Mitigation & Management Measures and Residual Impacts – Construction**

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Worker Influx, Community Health and Crime | Medium | Residents of Yangitosh village, northeastern project-site community, surrounding makhallas | High | Moderate | • Provide worker accommodation, whether on-site or off-site, in accordance with the requirements of the EBRD and IFC Workers' Accommodation: Processes and Standards, ensuring adequate water supply, sanitation, waste management, healthcare access, security, and recreational facilities. Accommodation arrangements will be managed to minimise pressure on local services, reduce unnecessary interaction with surrounding communities, and promote worker wellbeing.<br>• Develop and implement a Worker Influx Management Plan to identify, manage, and monitor potential community health, safety, security, and social impacts associated with workforce influx, including measures related to accommodation, worker conduct, community relations, service demand, and grievance management.<br>• Development and implementation of a Recruitment Procedure under the Labour and Working Conditions Management Plan (LWCMP), prioritising recruitment of the local workforce where feasible.<br>• Implementation and strict enforcement of a Worker Code of Conduct, provided in languages understood by workers, covering acceptable behaviour, compliance with national laws and local cultural norms, and the explicit prohibition of harassment, violence (including GBVH), criminal activity, and substance abuse.<br>• Mandatory induction, refresher, and cultural sensitisation training for all workers on community relations, respectful conduct, local customs, public health, and safety expectations.<br>• Provision of on-site recreational facilities within accommodation areas to minimise the need for workers to use community facilities.<br>• Implementation of a Traffic Management Plan (TMP) regulating workforce transport routes, schedules, speed limits, and pedestrian safety measures to reduce traffic-related risks to communities.<br>• Appointment of a Community Liaison Officer (CLO) responsible for stakeholder engagement, information disclosure, grievance handling, and management of emerging community-related issues. | Negligible to Moderate |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Establishment of an accessible project-level Grievance Redress Mechanism (GRM) for community members and workers, with clear procedures for submission, resolution, and feedback.<br>• Implementation of health surveillance and monitoring measures, including communicable disease control, dust and noise monitoring, and regular health inspections within worker accommodation and work sites.<br>• Provision of access to qualified medical professionals and suitable medical facilities during construction; all site personnel shall be required to obtain a medical fitness certificate from an authorised medical centre prior to mobilisation.<br>• Delivery of awareness and training programmes on sexually transmitted infections (STIs) for workers and, where appropriate, surrounding communities, in coordination with local health authorities and using culturally appropriate approaches. | |
| Public/Community Safety | **Medium** | Residents, local road users. | **Medium** | **Moderate** | • Development and implementation of a Construction Traffic Management Plan Framework prior to construction commencement. The Framework will establish traffic management principles, stakeholder coordination mechanisms, community safety measures, monitoring requirements, and minimum standards for contractor-specific Traffic Management Plans.<br>• Develop and implement a Worker Influx Management Plan to identify, assess, manage, and monitor potential community health, safety, security, and social impacts associated with workforce influx. The assessment shall be disaggregated by vulnerable and at-risk population groups identified in the ESIA socio-economic baseline, with targeted mitigation measures to address disproportionate risks to women, children, elderly persons, persons with disabilities, low-income households, and other vulnerable groups.<br>• Deployment of trained traffic marshals near settlements, schools, worksite access points, and other high-risk crossings.<br>• Installation or upgrading of road safety infrastructure including signage, speed-calming measures, pedestrian crossings, and street lighting in coordination with local authorities. | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Community awareness campaigns to inform residents about construction schedules, traffic risks, road safety practices, and emergency contacts.<br>• Application of dust and noise control measures to minimise health and safety risks to nearby residential areas.<br>• Provision of on-site emergency response capability, including coordination with local healthcare facilities and ambulance services.<br>• Delivery of health and safety inductions and training for workers covering communicable diseases and preventive measures, including TB, STIs, and HIV/AIDS.<br>• Ensuring access to medical professionals and appropriate medical facilities during construction; workers will be permitted to work only upon clearance with a valid medical fitness certificate from an authorised medical centre.<br>• Preparation and implementation of a Medical Evacuation and Emergency Response Plan, including contact details for local hospitals and ambulance services.<br>• Measures to avoid or minimise exposure to water-borne, vector-borne, and other communicable diseases associated with project activities.<br>• Coordination with local authorities to conduct community awareness programs on STI transmission, targeting communities near the project site. | |
| Public/ Community Security | Medium | Residents of AoI, particularly women and vulnerable groups | High | Moderate | • The EPC Contractor will prepare and implement a Project Security Plan consistent with the Security Risk Assessment.<br>• The requirement that all Project security personnel remain unarmed shall be incorporated into EPC contracts, security service agreements, and the Project Security Plan. Compliance shall be verified through contractor audits, inspections, and periodic performance reviews. The Project Security Plan will establish contractual requirements, monitoring arrangements, reporting procedures, and corrective actions to ensure compliance with the Project's unarmed security policy.<br>• The Project will deploy dedicated security personnel, including 24/7 security coverage across the Project site and staffed gatehouses, | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | with coordination mechanisms established with local law enforcement and mahalla structures.<br>• Security personnel will adhere to a strict Code of Conduct prohibiting anti-social behaviour, harassment, intimidation, GBVH/SEA/SH, and abuse of authority, and will receive regular training on human rights, grievance handling, and GBVH/SEA/SH response procedures.<br>• Controlled site access will be enforced through perimeter fencing during enabling works, clear demarcation of restricted areas, and the use of valid ID cards, permits to work, and HSE-compliant access requirements for all Project personnel.<br>• All vehicles entering the site will require prior approval and registration, with security personnel maintaining records of all incoming and outgoing vehicles.<br>• Unauthorized access attempts by individuals without valid permits or required PPE will be prevented or addressed through removal from site, incident investigation, and implementation of corrective actions.<br>• Adequate lighting will be provided at gatehouses, construction access points, and high-traffic public areas to deter unauthorized access and improve safety.<br>• CCTV surveillance will be installed at key locations around the site and at gatehouses, where appropriate, to enhance security monitoring and incident response.<br>• Incident reporting, recording, investigation, and follow-up procedures will be implemented and integrated with the Project Grievance Redress Mechanism (GRM).<br>• Conduct of regular community liaison meetings to communicate risks, address concerns, and maintain trust with surrounding communities. | |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Gender-Based Violence, Harassment, and Sexual Exploitation & Abuse (GBVH/SEA) | Medium | Women, children, elderly, persons with disabilities | High | Moderate | • The Project Company and EPC Contractor will establish and implement a formal GBV/SEA/SH Policy and Code of Conduct applicable to all project personnel, subcontractors, and service providers, clearly defining prohibited behaviours, sanctions, and disciplinary measures.<br>• Mandatory GBV/SEA/SH awareness and sensitization training will be provided to all project workers, supervisors, and management, covering risks, workers' responsibilities, legal consequences of misconduct, and expected standards of behaviour.<br>• Targeted training will be delivered to Project staff and designated focal points on survivor-sensitive interviewing, information handling, and protection of women, girls, boys, and other vulnerable groups.<br>• A confidential, accessible, and survivor-centred reporting mechanism will be established, including anonymous reporting options, and integrated within the Project Grievance Redress Mechanism (GRM), ensuring confidentiality, non-retaliation, dignity, and respect for survivors.<br>• GBV/SEA/SH risks will be identified through a risk assessment conducted in consultation with stakeholders, including women leaders, community representatives, and organisations working with adolescent girls and boys, to inform targeted mitigation measures.<br>• Community-level awareness and information campaigns will be undertaken to inform affected communities, including women and vulnerable groups, about GBV/SEA/SH risks, reporting channels, and available support services.<br>• The Project will collaborate with mahalla committees, community liaison officers (CLEO), social workers, healthcare providers, and law enforcement agencies to ensure coordinated prevention, referral, and response arrangements.<br>• Physical risk reduction measures will be implemented, including improved lighting along pedestrian routes, near worker camps, and at construction access points, as well as safe transport arrangements to reduce exposure risks. | Negligible to Moderate |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Survivor support services, including access to counselling, psycho-social support, legal assistance, and referral to specialised service providers, will be made available at no cost to survivors.<br>• All confirmed GBV/SEA/SH cases will be referred to relevant legal authorities, where appropriate, for investigation and prosecution, in accordance with national legislation.<br>• All GBV/SEA/SH complaints will be securely documented, monitored, and closed, with data protection measures in place to preserve anonymity and confidentiality. | |
| Physical and Economical Displacement | High | Project-Affected Households | High | Moderate to Major | • Implementation of a Project-specific Resettlement Action Plan (RAP) in compliance with national legislation and applicable international lender standards.<br>• Provision of full and fair compensation at replacement cost to all Project Affected Persons (PAPs) experiencing physical and/or economic displacement, prior to displacement.<br>• Phased and well-planned relocation to minimise disruption to households, livelihoods, and community networks.<br>• Provision of replacement housing and/or cash compensation with secure tenure arrangements, ensuring an adequate standard of living and continuous improvement in living conditions.<br>• Livelihood restoration measures, including land-for-land options where feasible, skills training, employment support, and transitional income assistance.<br>• Provision of psychosocial support and counselling, with particular attention to vulnerable households and individuals.<br>• Transparent and inclusive stakeholder engagement, including access to information, disclosure of entitlements, and meaningful participation of PAPs in decision-making, consistent with principles of equality and non-discrimination.<br>• Establishment and operation of an accessible and effective Grievance Redress Mechanism (GRM), including provisions to ensure access for vulnerable groups and timely resolution of complaints. | Negligible to Moderate |

| Potential Impact | Magnitude | Receptor | Sensitivity | Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Risks to Vulnerable Groups | High | Women, children, elderly, persons with disabilities, ethnic minorities | High | Moderate | • Prioritisation of vulnerable groups in job opportunities and any community investment projects.<br>• Consultations and project information will be provided in areas that are easily accessible to vulnerable groups.<br>• The Project Company and EPC Contractor will provide alternative means of communication and access to information for those without access to digital platforms.<br>• Information will be provided and disclosed in local languages i.e., Uzbek, Russian etc.<br>• EPC Contractor to provide adequate training to the non-local workers in the Project, especially in terms of interaction with the local ethnic minority;<br>• Allow locals including residents to report concerns through the grievance mechanism;<br>• EPC Contractor will adopt a zero-tolerance policy towards unacceptable workforce behaviour towards females or any community member.<br>• The Project Company and EPC Contractor will disclose their zero-tolerance policy on retaliation and GBVH against affected people and will ensure these are implemented carefully with a specific focus on vulnerable groups.<br>• Implementation of the Project specific RAP measures relating to vulnerable groups such as provision of additional support and prioritisation during recruitment. | Negligible to Moderate |

### 18.5.2 Operational Phase

During the operational phase, the project is expected to introduce a range of impacts on community health, safety, and security within the defined AoI, including areas affected by airport operations, aircraft noise, associated facilities, and surrounding communities. The reasonably foreseeable risks and potential impacts on public health, safety, and security are discussed below.

#### 18.5.2.1 Community Health

The operation of the project is expected to influence community health through several pathways, including air quality and noise exposure, healthcare demand pressures, vector-borne and waterborne risks, and occupational safety concerns. The following outlines the key potential impacts:

- Routine aircraft movements, ground support vehicles, and service traffic are anticipated to elevate emissions of particulate matter (PM), nitrogen oxides (NOx), and other air pollutants. Continuous noise from aircraft take-offs, landings, and ground operations may disturb nearby communities, particularly those located closest to the runway. Sensitive groups including children, the elderly, and individuals with pre-existing respiratory or cardiovascular conditions, may experience heightened stress, sleep disturbances, or exacerbation of respiratory symptoms.
- The influx of operational staff, passengers, and service providers is likely to increase demand on local healthcare services. Clinics and district hospitals may experience pressure on capacity, particularly in communities with limited access to specialized care, such as Surum and Yangiyul. Existing transport constraints in these areas could further impede timely medical attention.
- Airport landscaping and maintenance activities, such as irrigation and green area development, may inadvertently create breeding sites for disease vectors like mosquitoes, potentially increasing the risk of vector-borne illnesses. Additionally, improper operational water management could elevate the risk of waterborne diseases in communities relying on local water sources.
- The operational environment of the airport may increase the risk of minor injuries among workers and local residents due to handling of equipment, loading and unloading operations, and increased pedestrian-vehicle interactions. Seasonal respiratory illnesses may also be aggravated by dust and emissions from service roads and other operational activities.

To address potential community health impacts during the operational phase, the Project will implement a combination of preventative, management, and monitoring measures. Mitigation will focus on reducing exposure to air pollutants and noise through operational controls, including optimized flight paths, scheduling restrictions during sensitive periods, and installation of noise barriers where feasible. Continuous monitoring of ambient air quality and noise levels within the Area of Influence will ensure early detection of adverse conditions, enabling timely corrective actions. Healthcare demand pressures will be addressed through collaboration with local health authorities to strengthen clinic and hospital capacity, support emergency medical services, and facilitate access to specialized care where required. Vector-borne and waterborne disease risks will be minimized by implementing effective water management practices, controlling standing water in landscaping and irrigation systems, and conducting community awareness campaigns on hygiene and disease prevention. Occupational and public safety will be supported through staff training on safe handling procedures, provision of personal protective equipment, and the maintenance of designated pedestrian and vehicle routes to reduce accident risk. Management of these measures will be coordinated through the Project's Environmental and Social Management plan with a

designated officer responsible for oversight, reporting, and liaison with local authorities and communities. Residual impacts, following implementation of these mitigation and management measures, are expected to be low to moderate, spatially localized, and manageable. Sensitive populations may continue to experience minor disturbances from noise or emissions, but these are anticipated to remain within acceptable thresholds, while healthcare pressures and occupational risks will be substantially reduced through strengthened services and proactive safety measures.

#### 18.5.2.2 Community Safety and Traffic Impacts

During the operational phase, the Project is expected to significantly increase traffic volumes in an area currently characterized by low road activity, with passenger buses, taxis, cargo vehicles, and service trucks using narrow rural roads that offer limited signage and pedestrian protections. This increase elevates the risk of accidents involving pedestrians, livestock, and agricultural machinery, while also potentially delaying emergency response times, particularly in villages such as Surum, where baseline access is already constrained. Local transport infrastructure including roads, intersections, and bridges may experience accelerated wear and tear from heavy vehicle use, increasing maintenance needs and creating temporary safety hazards.

A separate assessment of operational traffic generation and associated infrastructure requirements will be undertaken as part of the Project technical studies. The findings will inform the Operational Traffic Management Plan and associated community safety measures prior to airport commissioning.

Although baseline crime levels in the area are currently low, the anticipated influx of vehicles, workers, and transient populations associated with the project could lead to a marginal increase in certain types of criminal or antisocial behavior. There may be a slightly higher risk of petty theft, opportunistic crime, or minor property damage, especially in areas with high foot traffic, public gathering spots, or transport nodes. Additionally, the presence of new or temporary populations could contribute to social disturbances, such as noise complaints, minor conflicts, or disorderly behavior, which may impact the perceived sense of safety among local residents and users of public spaces. While these risks are not expected to be significant, they warrant monitoring and the implementation of preventive measures, such as enhanced lighting, security patrols, public awareness campaigns, and coordination with local law enforcement to maintain community safety.

To mitigate the operational-phase traffic and safety risks, the Project will implement a range of practical measures aimed at protecting local communities and maintaining road infrastructure. Airport-related vehicles, including buses, taxis, cargo trucks, and service vehicles, will be directed along designated routes to minimize interactions with pedestrians, livestock, and agricultural machinery. Speed limits, warning signage, and pedestrian crossings will be installed at key locations, particularly near villages and high-traffic areas. Heavy vehicle movements will be scheduled to avoid peak local travel times, and regular maintenance of roads, bridges, and intersections will be conducted in coordination with local authorities to prevent accelerated deterioration and temporary hazards. Enhanced lighting and security measures will be implemented in public areas and transport nodes to reduce opportunities for petty theft and opportunistic incidents. Continuous monitoring of traffic conditions, coordination with emergency services, and engagement with local communities will ensure that interventions remain effective and responsive to changing conditions. Following these measures, residual impacts are expected to be low to moderate: while traffic volumes will remain higher than baseline levels, the risk of accidents, infrastructure damage, and minor security issues will be substantially reduced, and emergency response times will be maintained.

#### 18.5.2.3 Public/Community Security

During the operational phase, the project may influence public and community security within the Area of Influence (AoI) through both direct and indirect mechanisms. The increased presence of passengers, operational staff, service providers, and associated transport vehicles may elevate the risk of opportunistic crime, including petty theft, vandalism, or unauthorized access in public spaces, parking areas, and along transport routes. Higher traffic volumes on narrow rural roads could also contribute to safety hazards, particularly for pedestrians, livestock, and agricultural workers, while potential congestion may affect emergency response times. Although baseline crime levels are low and law enforcement presence is generally effective, the influx of transient populations and alterations in public space usage may affect community perceptions of safety, particularly among vulnerable groups such as women, children, the elderly, and persons with disabilities. Social tensions arising from competition for employment, access to services, or perceived inequities in benefit distribution may further exacerbate these security concerns. Collectively, these dynamics underscore the need to anticipate and manage operational-phase risks to maintain community confidence in public safety and minimize adverse effects on wellbeing and social cohesion.

During the operational phase, public and community security risks will be managed through a layered approach combining physical controls, institutional coordination, and community engagement. Preventive measures will include the establishment of regulated access controls within airport facilities, adequate lighting of public and transitional spaces, and the presence of trained security staff at key locations such as transport interfaces and parking areas. Road safety risks will be addressed through operational traffic controls, including speed regulation, clear signage, pedestrian safety features, and coordination with local authorities to manage traffic flows on surrounding rural roads. Security-related management actions will be integrated into the Project's environmental and social management framework, with defined responsibilities for incident tracking, routine inspections, and coordination with local police and emergency services. Community members will have access to clear and accessible channels to raise security concerns, ensuring early identification and response to emerging issues. With these measures in place, residual impacts on public and community security are anticipated to remain limited in scale and largely confined to isolated or short-term incidents. Ongoing monitoring and adaptive management will ensure that security conditions remain aligned with baseline expectations and do not result in material deterioration of community safety or perceptions of security within the Area of Influence.

#### 18.5.2.4 Gender-Based Violence, Harassment, and Exploitation (GBVH)

The presence of a predominantly male operational workforce within the Project Area of Influence (AoI) may create increased potential for harassment, exploitation, or intimidation in public spaces, workplace settings, and transport systems. In line with international good practice, these risks are particularly relevant to vulnerable groups including women, children, elderly persons, and persons with disabilities, who may experience heightened exposure if existing informal protection networks are inadequate, overwhelmed, or underutilized. The influx of workforce and associated economic activity may also indirectly contribute to social tensions, including disputes related to employment opportunities, access to local services, or perceived inequities in benefit distribution. Such dynamics can exacerbate vulnerabilities for marginalized populations, potentially leading to social friction within communities. Furthermore, even where formal incidents are limited, alterations in public space usage, security practices, and transport patterns can affect community perceptions of safety and wellbeing. This may have consequential impacts on women's mobility, school attendance, or participation in community and civic activities, underscoring the need for proactive mitigation, awareness raising, and monitoring measures consistent with managing social risks and protecting vulnerable populations.

To address potential GBVH risks during the operational phase, the Project will implement a comprehensive set of mitigation and management measures aimed at preventing, monitoring, and responding to incidents, while safeguarding vulnerable populations. Key mitigation measures include the establishment of confidential and accessible reporting channels for GBVH incidents, provision of safe transport and well-lit pedestrian routes, and targeted awareness and prevention training for all operational staff, contractors, and associated service providers. These efforts will be complemented by active engagement with local mahalla committees, social workers, and law enforcement to strengthen community-level protective networks and support timely interventions. Awareness campaigns will be conducted to inform residents, particularly women, children, elderly persons, and persons with disabilities, of their rights, available support mechanisms, and safe channels for reporting concerns. Following implementation of these mitigation and management measures, residual GBVH risks are expected to be low, with the likelihood of incidents minimized and potential impacts on mobility, access to education, and participation in community life substantially reduced. Continuous monitoring and adaptive management will remain essential to respond effectively to any emerging risks and maintain a safe and inclusive environment for all community members.

Community Exposure to Hazardous Materials

Hazardous materials required for airport operations, including aviation fuel, lubricants, cleaning agents, firefighting chemicals and other regulated substances, will be stored, handled and transported within designated secure operational areas of the airport in accordance with applicable national regulations, international aviation requirements and established hazardous materials management procedures. Consequently, the potential for routine community exposure to hazardous materials is considered to be low.

Notwithstanding the above, accidental releases or incidents involving hazardous materials could have the potential to affect receptors beyond the airport boundary under exceptional circumstances. To minimise this risk, the Airport Operator will implement hazardous materials management procedures, including secondary containment, spill prevention measures, routine inspection and maintenance of storage facilities, incident reporting, and emergency response procedures for containment, clean-up and recovery.

The Airport Emergency Response Plan (ERP) will include procedures for coordinating with the relevant emergency services and competent authorities in the event of a hazardous materials incident with the potential to affect surrounding communities. Where there is a potential off-site risk, timely notification of the relevant authorities and affected communities will be undertaken through the appropriate emergency communication channels. The ERP will also define responsibilities for implementing appropriate protective measures, such as traffic management, temporary access restrictions, shelter-in-place advice or evacuation, where required, to protect public health and safety. The Emergency Response Plan, including community communication protocols, will be developed and regularly tested prior to commencement of airport operations.

**Table 18-6 Community Health Safety: Impact Significance, Mitigation & Management Measures and Residual Impacts – Operation**

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| Community Health | Moderate | Communities within the AoI for Community Health, Safety and Security | High | Moderate | • Continuous monitoring of ambient air quality and noise levels at representative locations within the AoI, with corrective actions triggered if thresholds are approached or exceeded.<br>• Coordination with local health authorities to support healthcare facilities, emergency response services, and referral mechanisms for specialized care<br>• Integrated water and landscaping management to prevent standing water and vector breeding, supported by routine inspections and maintenance.<br>• Community awareness initiatives on hygiene, disease prevention, and health risk reporting.<br>• Occupational health and safety procedures for airport staff and contractors, including training, provision of PPE, and segregation of pedestrian and vehicle movements. | Negligible to Moderate |
| Community Safety and Traffic Impacts | Moderate | Local residents, road users, farmers | Medium to High | Moderate | • Development and implementation of an Operational Traffic Management Plan (OTMP) defining designated routes for airport-related vehicles, with scheduling of heavy vehicle movements to avoid peak local traffic periods, school hours, and agricultural activity times.<br>• Installation and maintenance of speed control measures, warning signage, road markings, pedestrian crossings, and adequate lighting near villages, schools, and other high-use areas to enhance road safety.<br>• Regular inspection, maintenance, and repair of roads, bridges, intersections, and access roads affected by project traffic, undertaken in coordination with relevant local authorities.<br>• Continuous monitoring of traffic conditions and coordination with emergency services to ensure emergency access and maintain response times.<br>• Preparation and enforcement of an Emergency Preparedness and Response Plan (EPRP) covering all public safety risks during the op- | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | erational phase, including site-specific response procedures, emergency contact details, and coordination protocols with external agencies.<br>• Establishment and enforcement of Public Safety Zone (PSZ) and Aviation Safety Zone (ASZ) requirements, including access restrictions, land-use controls, safety signage, community awareness measures, and coordination with relevant aviation and local authorities to minimise risks to nearby communities from airport-related operations and construction activities.<br>• Mandatory Code of Conduct training for all operational-phase employees to promote respectful behavior, effective coordination with neighboring communities, and compliance with community health, safety, and security requirements.<br>• Establishment of an accessible Grievance Redress Mechanism (GRM) to enable community members to raise concerns or complaints directly with Project leadership in a timely and transparent manner.<br>• Delivery of health and safety inductions and refresher training by on-site H&S teams, including guidance on communicable disease risks and preventive measures (e.g., TB, STDs, HIV/AIDS).<br>• Implementation of ongoing community awareness programs, particularly targeting children and young adults, on the risks associated with unauthorized access, vandalism, or unsafe interaction with project facilities. | |
| Gender-Based Violence, Harassment, and Exploitation (GBVH) | Low to Moderate | Women, children, elderly persons, persons with disabilities | High | Moderate | • The Project Company and the O&M Company will conduct a GBV/SEA/SH risk assessment in consultation with relevant stakeholders including women leaders and those working with young adolescent girls and boys. This will also include the identification of potential interventions and risk mitigation measures.<br>• The project company will develop a GBVH policy and disclose it to the EPC Contractor and its employees.<br>• The O&M Company will develop and implement a Project specific GBVH Policy detailing the list of unacceptable behaviour among workers, provisions for reporting, sanctions for perpetrators and | Negligible |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | available resources & support systems for the victims in accordance with lenders and Uzbek requirements.<br>• Awareness training will be mandatory for all Project workers regarding the GBV/SE/SH risks and the workers responsibilities and the legal consequences of being a perpetrator.<br>• Training will be provided to GBVH focal point on the risks of GBV/SEA/SH and information provided on how to deal with any GBV/SEA/SH related cases.<br>• GBVH policy will be communicated to community members and training provided to the community members particularly women on the risks of GBV/SEA/SH. Information will be provided on how to report and deal with any GBV/SEA/SH related cases and the services that will be made available to offer support to any of the victims.<br>• Approach towards GBV/SEA/SH prevention, mitigation and response will be survivor centered and ensure confidentiality, dignity and respect to them.<br>• The Project staff will be trained on how to preserve the safety of the women, girls, boys when interviewing them and collecting information about their experiences on GBV/SEA/SH.<br>• The Project will provide essential services for survivors such as access to counselling services, support groups, legal support etc. at no cost to them.<br>• All determined cases of GBV/SEA/SH will be referred to relevant legal entities in the Project area for further investigation and prosecution.<br>• The project grievance mechanism will be made available to project workers and community members and will ensure that survivors' information is confidential and kept anonymous.<br>• All cases relating to GBV/SEA/SH will be documented and closed.<br>• The O&M Company will prepare and implement a GBV/SEA & SH Prevention and Response Action Plan which will put necessary protocols and mechanisms to address the risks of SEA/SH and how to address any allegations that may arise in accordance with the World | |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | Bank Good Practice Note on Addressing SEA/SH in Investment Project Financing involving Major Civil Works. | |
| Public/ Community Security | Low to Moderate | Local communities, passengers, transport users | Medium | Moderate | • The project will employ its own security staff who will provide 24/7 security control across the Project site and dedicated security staff at gatehouses.<br>• The security personnel will be regularly trained on GBVH code of conduct including how to handle grievances related to GBVH from the community.<br>• The O&M Company shall ensure that all contracted security providers operate under contractual provisions requiring unarmed security personnel, unless otherwise required by law or authorised by the Project Company in accordance with lender requirements. Compliance shall be monitored through routine audits and contract management procedures.<br>• All vehicles entering the site will require pre-approved clearance and will need to be registered. Project security will record all instances of incoming vehicles.<br>• CCTV will be installed at key locations around the site and at gatehouses.<br>• Appropriate lighting will be provided at gatehouses for security personnel to prevent unauthorised access.<br>• Project personnel will only be provided access to the construction site with valid ID cards and permits to work in line with HSE requirements. | Negligible |
| Community Exposure to Hazardous Materials | Moderate | Local residents, road users, farmers | Medium to High | Moderate | • Hazardous materials, including aviation fuel, lubricants, firefighting agents and other chemicals, will be stored and handled within designated secure areas in accordance with applicable national regulations and international aviation standards.<br>• Secondary containment, impermeable storage areas, spill prevention systems and routine inspection and maintenance programmes will be implemented for hazardous materials storage and transfer facilities to avoid risks of accidental release. | Minor |

| Potential Impact | Magnitude | Receptor | Sensitivity | Potential Impact Significance | Mitigation and Management Measures | Residual Impact |
|---|---|---|---|---|---|---|
| | | | | | • Procedures for the safe handling, storage and transportation of hazardous materials will be implemented, including appropriate staff training, emergency response equipment and incident reporting procedures.<br>• An Airport Emergency Response Plan will be developed and implemented prior to commencement of operations.<br>• Where a hazardous materials incident has the potential to affect receptors beyond the airport boundary, procedures will be implemented for the timely notification of relevant authorities and affected communities, together with the provision of appropriate public safety instructions (e.g. temporary access restrictions, shelter-in-place or evacuation, where necessary). | |

## 18.6 Monitoring

The Project will actively monitor Community Health and Safety through the implementation of the measures described above. All key management measures, including traffic and road safety controls, physical safety measures, and grievance and reporting mechanisms, will be regularly reviewed to ensure their effectiveness.

**Table 18-7 Community Health, Safety and Security Monitoring Measures - Construction & Operation**

| Indicator | Parameter | Frequency |
|---|---|---|
| Worker influx management | • Number of workers accommodated on-site vs off-site.<br>• Compliance of worker accommodation with IFC/EBRD standards | Monthly |
| Construction traffic management performance | • Number of heavy vehicle movements.<br>• Compliance with approved routes; traffic incidents<br>• Community complaints related to traffic.<br>• Road condition monitoring | Monthly during construction |
| Road safety incidents involving communities | • Number and severity of vehicle-pedestrian incidents, livestock incidents, and near misses | Monthly |
| Effectiveness of community traffic awareness | • Number of consultations conducted; feedback received through GRM | Quarterly |
| Contractor compliance with Traffic Management Plan | • Audit findings, corrective actions, driver training records | Monthly |
| Record of any conflict between the workers and community members including any cases relating to sexual harassment | Complaints filed by community members or Project workers | Daily during construction and quarterly during operation |
| Number of SEA/SH grievances handled through a survivor centred approach | Number of grievances handled and how many cases are referred to legal entities for redress. | Ongoing |
| Record of average period taken to handle SEA/SH grievances in accordance with lenders requirements and referral to legal entities | Complaints received and the period of time it takes to close them. | Ongoing |
| Discharging of firearms by security personnel on site | Security personnel/local police | Ongoing in the event the security personnel are armed |
| Record of human rights violation/complaints from the local communities | Complaints filed by community members in relation to the Project | Ongoing |
| Record of incidents/accidents and near misses (involving external parties) | Records from daily monitoring procedures on site | Ongoing |

| Indicator | Parameter | Frequency |
|---|---|---|
| Record of any communicable diseases on site that could pose a risk to the local communities | Project site clinic or HSE personnel | Ongoing |
| Number of grievances closed out | Grievance Management System | Quarterly / bi-yearly |
| Average time for grievance processing and close out and trends | Grievance Management System | Quarterly / bi-yearly |
| Number of grievances open, method to submit the grievance and trends | Grievance Management System | Quarterly / bi-yearly |
| Topics raised in grievances and trends | Grievance Management System | Quarterly / bi-yearly |

# 19.0 Human Rights Impact Assessment

In line with the enhanced requirements of the Equator Principles IV (EP IV) and increasing global expectations for business accountability, a Human Rights Impact Assessment (HRIA) has been undertaken for the Tashkent Project as part of the ESIA. The HRIA assesses potential adverse impacts of Project activities on the human rights of workers and affected communities within the Project's area of influence.

While specific labour- and community-related issues are addressed in other ESIA chapters, this section provides a consolidated, high-level overview of key human rights risks and protections. Previously identified mitigation measures are not duplicated here but are referenced for consistency.

The HRIA is aligned with EP IV requirements and the United Nations Guiding Principles on Business and Human Rights, and is informed by internationally recognised human rights instruments, including the International Bill of Human Rights and the ILO Declaration on Fundamental Principles and Rights at Work. The Project commits to respecting human rights across its activities and ensuring that contractors, subcontractors, and suppliers likewise avoid infringing human rights and address any adverse impacts to which they may be linked.

## 19.1 Applicable Requirements & Standards

### 19.1.1 National Regulations

Uzbekistan, as a UN member, supports and implements all of the UN's major international instruments relating to the protection of human rights and freedoms, including the UN Universal Declaration of Human Rights, Human Rights Council Resolution No. 30/15 on human rights and preventing and countering violent extremism, and the Convention on the Elimination of All Forms of Discrimination. The State Policy on Human Rights in Uzbekistan aims to prevent infringement of human rights and freedoms, as well as to develop the necessary organizational, legal, social, economic, spiritual, and moral grounds for human rights protection. Two relevant legislative acts have been discussed in further detail below:

**Constitution of the Republic of Uzbekistan (1992)**

The constitution asserts that "democracy in the Republic of Uzbekistan shall be based upon common human principles, according to which the highest values shall be the human being, his life, freedom, honor, dignity and other inalienable rights."

Also, the constitution has a dedicated chapter for "Guarantees of human rights". The chapter X Guarantees of human rights and freedoms has following articles;

- Article 43. The state shall safeguard the rights and freedoms of citizens proclaimed by the Constitution and laws.
- Article 44. Everyone shall be entitled to legally defend his rights and freedoms and shall have the right to appeal any unlawful action of state bodies, officials and public associations.
- Article 45. The rights of minors, the disabled and the single elderly shall be protected by the state.
- Article 46. Women and men shall have equal rights. • The Oily Majlis (parliament) has an elected and authorized person to deal with human rights

**The Protection of Women against Harassment and Violence Act (2019).**

The Act defines the various forms of violence - sexual, physical, economic, psychological against women. Protection from harassment and violence is defined as a system of urgent measures of economic, social, legal, organizational, psychological and other nature in order

to eliminate the danger to women's life and health, to ensure their safety and to prevent repeated illegal actions against them.

Other relevant legislations include:

- The National Human Rights Strategy was approved by Presidential Decree on 22 June 2020. No. PD-6012;
- Law on guaranteeing equal rights and opportunities for women and men (2019);
- The Law on Mediation (2018);
- Law on Public Control (2018); and
- Law on Administrative Procedures (2018).

**Other Relevant Legislation**

Other relevant legislations of the Republic of Uzbekistan include:

- The National Human Rights Strategy was approved by Presidential Decree on 22 June 2020. No. PD-6012
- Law on guaranteeing equal rights and opportunities for women and men (2019); • The Law on Mediation (2018);
- Law on Public Control (2018); and
- Law on Administrative Procedures (2018)

The Republic of Uzbekistan has also made international commitments in relation to human rights. They are listed below:

- The Universal Declaration of Human Rights
- The International Covenant on Civil and Political Rights
- The International Covenant on Economic, Social and Cultural Rights

### 19.1.2 Lender Requirements

The Project Company is seeking to secure project finance from international financial institutions that apply defined environmental and social (E&S) standards as part of their investment decision-making processes. These institutions may either implement their own internal E&S policies and performance requirements or align with internationally recognised sustainability frameworks and development finance standards.

**IFC**

Table 19-1 IFC PS that are linked to human rights provisions and requirements.

**Table 19-1 Applicable PSs in relation to human rights**

| Requirement | Description |
|---|---|
| PS 1 – Assessment and management of environmental and social risks and impacts | States that clients should respect human rights and address adverse human rights impacts that clients may cause or contribute to.<br>It requires the assessment and management of environmental and social risks and impacts to workers, affected communities, environment, and those associated with the supply chain. |
| PS 2 – Labour and working conditions | PS 2 is guided by several ILO conventions and recognises that economic growth through employment creation and income generation should be accompanied by the protection of the fundamental rights of Project workers inclusive of supply chain workers. |

| Requirement | Description |
|---|---|
| | Outlines requirements for projects linked to Human Resource (HR) policies, management, working conditions as well as key processes for occupational health and safety (OHS) management and grievance redress.<br>Additionally, where accommodation is provided to workers, it should be provided in a manner consistent with principles of non-discrimination and equal opportunity. Workers' accommodation facilities should not restrict workers' freedom of movement or of association. |
| PS 4 – Community health, safety and security | Establishes requirements for the safeguard of affected communities from risks and impacts, such as those related to the spread of communicable diseases, the loss of ecosystem functions, site access and operation, material use, etc.<br>Requires clients to prevent or reduce the risks and impacts that project-related activities may have on vulnerable groups in respect to community health, safety, and security.<br>PS4 states that the safeguarding of project workers and property should be carried out in accordance with relevant human rights principles. |
| PS 5 – Land Acquisition and Involuntary Resettlement | Requires clients to avoid or minimise involuntary resettlement wherever possible, and where unavoidable, to mitigate adverse social and economic impacts. It emphasises fair compensation, livelihood restoration, meaningful consultation, and grievance mechanisms, ensuring that resettlement processes are undertaken with due regard to human rights principles. |
| PS 8 – Cultural Heritage | Requires clients to protect cultural heritage from adverse project impacts, including tangible and intangible forms. It emphasises respect for cultural rights, meaningful engagement with affected communities, and adherence to internationally recognised practices when cultural heritage is affected by project activities. |

In addition to the PSs, the following IFC guidelines are applicable to the proposed Project:

- IFC Guidance on Gender based violence and harassment in the construction sector (2020).
- IFC Good Practice Handbook on the Use of Security Forces: Assessing and Managing Risks and Impacts (2017).
- IFC Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets (2007).
- IFC's Good Practice Handbook on Land Acquisition and Involuntary Resettlement (2023).

**IFC Guidance on Gender Based Violence and Harassment (GBVH) in the Construction Sector**

The assessment, prevention, monitoring, and response measures with regards to GBVH should be developed in line with the following principles:

- **Survivor Centred**: The rights of GBVH survivors need to be consistently prioritised and used as the starting point for all decisions on efforts to assess, prevent, monitor, and respond to GBVH.
- **Safe:** Survivors, witnesses, and those who report and seek to address GBVH can be at risk of retaliation, including threatening and violent behaviour, often from those who do not like their position of power being challenged. Companies should prioritise the safety of those who have experienced, witnessed, and reported GBVH.
- **Context specific**: All measures need to be rooted in a thorough understanding of the local context. Investors and companies should understand

the legal and social context and identify the support mechanisms that are in place.

- **Collaborative:** Companies should seek inputs from a range of internal and external stakeholders to increase the likelihood of broader buy-in and make GBVH prevention more effective.
- **Inclusive:** Companies should recognise the heightened risks of GBVH faced by certain groups who are subject to discrimination and marginalization. High risk groups often include people with disabilities, single parents, migrants and ethnic minorities and sexual and gender minorities. The system should also account for illiterate or non-literate people who may not be able to access written information on GBVH reporting mechanisms.
- **Integrated**: Processes, efforts to assess, prevent, monitor, and respond to GBVH needs to be integrated as much as possible into existing processes and management systems, such as OHS, security management systems, environmental and social management systems (ESMS) and human resources (HR) policies and procedures.
- **Non-discriminatory**: All survivors need to be listened to and treated equally and promote diversity in the workplace.
- **Well-informed**: Companies should draw on relevant expertise when developing prevention and response measures. The grievance redress mechanism and investigation procedures should be set up to ensure they are appropriate, relevant, and safe in the local context.

According to the guidance, the benefits of addressing GBVH include:

- Improvement to workers' physical and emotional wellbeing and strengthening of OHS.
- Avoiding reputational damage, financial risks and legal liabilities for companies, investors, and construction contractors.
- Building relationships and social license to operate in communities. This can be achieved through regular dialogue to understand and track project GBVH risks as well as the effective use of measures to prevent and respond to GBVH.
- Broadening of the pool of potential workers that companies can draw upon.
- Including women workers from nearby communities because of lower perceived risk of GBVH.

**EBRD**

According to EBRD's Environmental and Social Policy, EBRD is committed to the respect of human rights in the Project they finance. EBRD is also guided by the International Bill of Human Rights and the eight core conventions of the International Labour Organization.

ESR 1 states *"…it may be appropriate for the client to complement its environmental and social assessment with further studies focusing on specific risks and impacts such as human rights."*

EBRD also requires the application of ESR 5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement to be consistent *with the universal respect for, and observance of human rights and freedoms specifically the right to private property, adequate housing and to the continuous improvement of living conditions.*

**EPFI**

In line with EP IV requirements, the United Nations Human Rights Guiding Principles apply to the Project. HRGP II on "The corporate responsibility to respect human rights" recognises that it is the responsibility of businesses and corporations to respect human rights. It is a global standard of expected conduct for all business enterprises wherever they operate. It exists independently of a states' ability and/or willingness to fulfil their human rights obligations and

does not diminish those obligations. The Foundational principles to take into consideration are:

- Principle 11: Business enterprises should avoid infringing on the human rights of others and should address adverse human rights impacts with which they are involved.
- Principle 12: The responsibility of business enterprises to respect human rights refers to internationally recognized human rights – understood, at a minimum, as those expressed in the International Bill of Human Rights and the principles concerning fundamental rights set out in the International Labour Organization's Declaration on Fundamental Principles and Rights at Work
- Principle-13: The responsibility to respect human rights requires that business enterprises avoid causing or contributing to adverse human rights impacts through their activities, and address such impacts when they occur;
- Principle-14: The responsibility of business enterprises to respect human rights applies to all enterprises regardless of their size, sector, operational context, ownership and structure. Nevertheless, the scale and complexity of the means through which enterprises meet that responsibility may vary according to these factors and with the severity of the enterprise's adverse human rights impacts
- Principle-15: Business enterprises should have policies and processes appropriate to their size and circumstances in place, including:

The following Operational principles should also be taken into consideration.

- Principle-16: Policy commitment
- Principle-17 to 21: Human rights due diligence
- Principle 22: Remediation

**United Nations Guiding Principles on Business and Human Rights**

In addition to adhering to human rights requirements under the Uzbekistan laws and lenders requirements, the project construction and operational phases will be required to adhere to the United Nations Guiding Principles on Business and Human Rights. The Guiding Principles are grounded in recognition of the role of business enterprise as specialised organs of society required to comply with all applicable laws and to respect human rights.

## 19.2 Baseline Conditions

### 19.2.1 National Human Rights Context

The Project is located in the Republic of Uzbekistan, which has undertaken a series of legal and institutional reforms in recent years aimed at strengthening human rights protections and improving alignment with international standards. The country is a party to core United Nations human rights conventions and has progressively incorporated rights-based principles into national development and governance frameworks.

Human rights protections are embedded in the Constitution and further elaborated through sectoral legislation and policy instruments. These frameworks collectively cover a broad range of civil, political, economic, social, and cultural rights, including labour rights, gender equality, public participation, access to justice, and administrative transparency. In addition, Uzbekistan's legal framework recognises key civil liberties central to a rights-based society, including the right to privacy, freedom of expression, freedom of association, and the right to peaceful assembly.

At the same time, available assessments indicate that, as in many jurisdictions undergoing transition and reform, gaps may persist between legislative provisions and practical enforcement, particularly at sub-national levels. These implementation challenges may be relevant to large infrastructure projects and can include variable awareness of rights among workers and communities, capacity constraints in grievance handling systems, and potential risks related to land acquisition, labour conditions, and community health and safety.

Accordingly, while Uzbekistan demonstrates an evolving human rights framework with ongoing reforms, project-level due diligence should continue to assess context-specific risks and verify the extent to which any heightened human rights risk classification is applicable to the Project's specific circumstances.

### 19.2.2 Right to Privacy and Freedom of Association

The right to privacy is reflected in constitutional protections and related legislation governing personal data protection, confidentiality of communications, and limitations on unlawful interference with private and family life. These provisions are particularly relevant in the context of infrastructure development projects, where personal data collection, worker records, grievance mechanisms, and stakeholder databases are routinely maintained. While the legal framework provides a basis for protection, practical implementation may vary depending on institutional capacity and awareness of data protection obligations at the project and local authority levels.

The freedom of association is also recognised under national law and includes the right of individuals to form and join organisations, including trade unions and civil society groups. This right is particularly relevant to labour relations and worker representation in project-related employment. Although the legal framework provides for unionisation and collective representation, the degree of independence and effectiveness of such associations may vary in practice, which can influence the ability of workers to organise and advocate for improved working conditions.

### 19.2.3 Freedom of Expression

The freedom of expression is legally recognised and enables individuals and communities to seek, receive, and impart information and opinions. In the project context, this right is closely linked to stakeholder engagement processes, grievance redress mechanisms, and community consultation activities. While formal protections exist, available assessments suggest that the effective exercise of this right may be influenced by contextual factors such as awareness of entitlements, confidence in reporting concerns, and perceived responsiveness of authorities or project actors.

### 19.2.4 Child Labour

The Republic of Uzbekistan has undergone marked changes in child labour practices over the past decade, driven by legislative reforms and international monitoring partnerships. Historically, Uzbekistan's cotton harvest was internationally criticised for widespread mobilisation of children into agricultural work, often reported as systematic and coercive prior to the mid-2010s. Independent monitoring missions and NGOs documented children, including those below school age, being mobilised alongside adults in the cotton fields under difficult conditions, disrupting education and normal childhood activities[98].

However, according to the International Labour Organization (ILO) and consistent third-party monitoring, systemic use of child labour in the cotton sector has been effectively eradicated by the early 2020s, with reporting for the cotton harvest of 2021 indicating that 99 per cent of

[98] https://www.hrw.org/news/2015/08/27/human-rights-watch-submission-world-bank-group-systematic-country-diagnostic

labourers aged of working age participated voluntarily and that instances of systemic child labour were no longer prevalent.

Despite these positive developments, ongoing reports from civil society and global labour monitors indicate that isolated cases of child labour persist outside of the cotton sector, particularly in informal agriculture and family economic activities where children may work due to household economic pressures rather than formal employment structures. Laws prohibiting the worst forms of child labour are in place, and oversight mechanisms involve labour inspectors and the Prosecutor General's Office, who coordinate implementation of child protection provisions within national legal frameworks[99].

Collectively, baseline conditions in Tashkent reflect a significant reduction in systemic child labour activities, accompanied by national policies aimed at improved educational access and enforcement, but with residual risks for sporadic child labour in informal sectors.

### 19.2.5 Forced Labour

Forced labour in Uzbekistan has been a focal point of international human rights scrutiny for many years. Historically, state-mandated or socially pressured labour mobilisation was widespread, especially within the cotton sector, where public sector workers and farmers were obligated to participate in harvest campaigns, often under threat of penalties for non-compliance. In recent years, the Government of Uzbekistan, with the support of ILO monitoring and cooperation agreements, has reportedly eradicated systemic forced labour in the cotton harvest, transitioning towards fair recruitment practices with high rates of voluntary participation reported in monitoring data[100].

Notwithstanding these reforms, independent human rights observations have continued to raise concerns that patterns of coercive recruitment, particularly at local levels, may still occur under conditions of administrative pressure to meet quotas or fulfil agricultural targets. These practices, while reportedly not systematic, suggest that the risk of forced labour persists in certain contexts, particularly where regulatory enforcement, awareness, or independent oversight is weak.

National legislation criminalises forced labour and prohibits it under labour and criminal law, and enforcement responsibilities are shared between labour inspectors, prosecutorial bodies, and law enforcement. However, effective enforcement remains uneven, and state control dynamics in some sectors continue to be identified as potential risk factors for labour rights violations.

### 19.2.6 Working Conditions

In the baseline working conditions context, Uzbekistan's legal framework establishes protections for employee rights to fair working conditions, decent pay, and occupational health and safety, as outlined in the national Labour Code and reinforced by ratified ILO Conventions. The Labour Code's objectives include guaranteeing rights to work, protection against discrimination, freedom from forced labour, and protection of workers' legal interests while recognising the principle of equality of labour rights. Despite these formal protections, multiple sources indicate that challenges in working conditions remain in practice, including complaints of excessive working hours, unpaid wages, and substandard workplace safety in certain public service sectors. Worker grievances documented in monitoring reports highlight issues such as poor enforcement of labour standards, wage disparities, and limited effective oversight of employer compliance with labour law, especially in informal or privately contracted settings[101].

[99] https://www.dol.gov/agencies/ilab/resources/reports/child-labor/uzbekistan

[100] https://www.ilo.org/resource/news/systemic-forced-labour-and-child-labour-has-come-end-uzbek-cotton

[101] https://2021-2025.state.gov/reports/2021-country-reports-on-human-rights-practices/uzbekistan

The central role of the state in economic management and rapid reforms has led to improvements in legal frameworks and oversight capacities, but implementation gaps persist. Structural constraints in monitoring, enforcement, and labour inspection contribute to uneven compliance with statutory requirements for safe and equitable working conditions across industries and regions. Baseline conditions therefore reflect a formal legal commitment to safe and fair working conditions, paired with practical limitations in enforcement and uniform application of those standards.

### 19.2.7 Collective Bargaining

Freedom of association and collective bargaining rights are formally recognised under Uzbekistan's labour legislation, including provisions within the updated Labour Code that guarantee workers' right to form and join trade unions or other representative associations, conduct negotiations, and conclude collective agreements[102]. The Labour Code also provides mechanisms for social partnership and collective negotiation at enterprise, territorial, sectoral, and national levels, involving representatives of workers, employers, and public authorities. These structures are intended to facilitate dialogue, agree on working conditions, and settle labour disputes.

However, baseline assessments indicate that the practical exercise of effective collective bargaining remains constrained by weak union autonomy and limited independent trade union activity. Historically, worker representation was often state-aligned, and collective bargaining has lacked substantive leverage to influence wages and conditions independently of employer or state direction. Reports suggest continuing challenges in ensuring that worker representatives can operate free from undue influence, fully negotiate collective agreements, and enforce agreements in ways that balance interests across workplace stakeholders.

Thus, while collective bargaining is legally permitted and institutional frameworks exist, the baseline reality reflects evolving but constrained implementation, with ongoing efforts required to strengthen independent worker representation and genuine bargaining practices throughout the labour market.

### 19.2.8 Gender Inequality and Discrimination

Gender inequality and discrimination continue to be significant human rights concerns in Uzbekistan. The Constitution and national legislation, including the Law "On Guarantees of Equal Rights and Opportunities for Women and Men," prohibit discrimination based on gender, and recent amendments to the Labour Code underscore equality of labour rights and equal pay for equal work[103].

Despite these legal guarantees, enforcement gaps and socio-economic disparities persist. Women's participation in the labour market remains significantly lower than men's, and women are disproportionately represented in informal work with lower pay and less job security. The World Bank and ILO analyses indicate that gender pay gaps and barriers to equal employment opportunities remain structural challenges, reflecting broader societal norms and labour market segmentation[104].

Gender-based discrimination also extends beyond employment into broader social and legal contexts, where protections against gender-based violence and discrimination are evolving but remain under development. Recent legislative reforms, such as new national laws addressing gender-based violence, signal progress but highlight the need for effective

[102] https://invest-in-uzbekistan.org/en/zakonodatelstvo/trudovoj-kodeks-respubliki-uzbekistan-dd-30-04-2023-obshhaya-chast-razdel-i-obshhie-polozheniya

[103] https://wbl.worldbank.org/content/dam/sites/wbl/documents/2024/WBL2024-Response-Data-Update-Uzbekistan-CFW.pdf

[104] https://www.ilo.org/sites/default/files/2025-03/Gender%20Pay%20Gap%20in%20Uz-ENG-2802.pdf

enforcement and cultural change to address entrenched discriminatory practices. Overall baseline conditions reflect a robust legal framework for gender equality, supported by targeted reforms and institutional commitments, alongside persistent practical and cultural challenges that continue to influence gender inequality in employment, compensation, and social rights.

### 19.2.9 Right to Health and Safety

The right to health and safety in Uzbekistan is constitutionally protected and reinforced through national public health and environmental legislation. In urban centres such as Tashkent, access to basic healthcare services is generally available; however, disparities remain in service quality, emergency response capacity, and environmental health management, particularly in areas affected by large infrastructure development. Baseline conditions indicate that air quality, noise, traffic safety, and exposure to construction-related hazards are recurring community concerns in urban development projects. While regulatory standards exist for environmental health protection, enforcement and monitoring capacity varies at the local level. Vulnerable groups, including children, elderly residents, and persons with pre-existing health conditions, may be disproportionately affected by environmental and safety risks associated with construction activities.

### 19.2.10 Land, Housing, and Property Rights

Land and property rights represent a critical human rights issue in Uzbekistan, particularly in the context of urban development and infrastructure projects. Land is predominantly state-owned, with individuals and entities holding long-term use or lease rights rather than full ownership. While national legislation provides procedures for land acquisition and compensation, concerns have been raised in the past regarding transparency, adequacy of compensation, and access to effective remedy for affected persons.

Baseline conditions in Tashkent reflect increasing regulatory clarity and judicial oversight of land acquisition processes; however, risks remain related to involuntary displacement, economic displacement, and disruption of livelihoods, unregistered structures, and small businesses may face heightened vulnerability due to limited legal recognition of tenure rights.

### 19.2.11 Access to Information and Public Participation

The right to access information and participate in public decision-making is legally recognized in Uzbekistan through national legislation on public control, administrative procedures, and environmental governance. In principle, communities have the right to be informed of projects that may affect them and to express concerns through consultation processes. Baseline conditions indicate that, while formal consultation requirements are increasingly embedded in project approvals, practical access to information may be limited by technical complexity, language barriers, or uneven outreach to vulnerable groups. Awareness of rights related to participation and consultation remains variable, particularly among low-income households and informal economic actors. Effective stakeholder engagement therefore remains a key determinant in safeguarding human rights at the project level.

### 19.2.12 Rights of Vulnerable and Marginalised Groups

In the Republic of Uzbekistan, certain population groups experience heightened vulnerability to human rights impacts due to a combination of socio-economic inequality, physical limitations, and institutional or structural barriers. These groups include women, children, persons with disabilities, elderly persons, low-income households, and individuals engaged in informal or precarious employment. Recognition of vulnerability is embedded in national legislation and policy frameworks; however, the practical realisation of these rights remains uneven.

Uzbekistan's Constitution guarantees equality before the law and prohibits discrimination, while sector-specific legislation provides protections for women, children, and persons with disabilities. The National Human Rights Strategy (Presidential Decree No. PD-6012, 2020) further acknowledges the need for targeted measures to protect vulnerable populations and improve access to justice, social services, and economic opportunities. In practice, however, international and national assessments indicate that implementation challenges persist, particularly at the local level.

Women in Uzbekistan continue to face structural barriers in employment, including lower labour force participation, occupational segregation, and wage disparities, despite legal guarantees of equal rights and opportunities. According to assessments by the World Bank and the International Labour Organization (ILO), women are overrepresented in informal and lower-paid sectors and remain underrepresented in technical and decision-making roles. Social norms and caregiving responsibilities further limit women's participation in public consultation processes and formal grievance mechanisms.

Children are legally protected from economic exploitation and harmful labour under national law and international conventions ratified by Uzbekistan. While systemic child labour has been largely eliminated in formal sectors, particularly agriculture, UNICEF and ILO reports indicate that children from low-income households may still be engaged in informal family-based economic activities. These conditions increase vulnerability to educational disruption and long-term socio-economic exclusion.

Persons with disabilities face persistent challenges related to accessibility, inclusion, and participation. Although Uzbekistan has adopted legislation aligned with the UN Convention on the Rights of Persons with Disabilities (CRPD), baseline studies by UNDP and national human rights institutions indicate that physical infrastructure, public transportation, and employment opportunities often remain inadequately adapted. Limited accessibility can restrict participation in consultations, employment opportunities generated by projects, and access to grievance mechanisms.

Elderly individuals and low-income households are similarly exposed to heightened risks, particularly where livelihoods are dependent on fixed incomes, informal economic activities, or proximity to project-affected land and infrastructure. According to national socio-economic assessments and World Bank poverty diagnostics, these groups may have limited capacity to absorb economic shocks, relocation impacts, or temporary disruptions to access, services, or income sources.

Informal workers, who operate outside formal employment arrangements, face additional vulnerabilities due to the absence of written contracts, social protection, and effective representation. International assessments, including those by the ILO and the United States Department of State (Country Reports on Human Rights Practices), highlight that informal workers often lack effective access to labour protections, grievance mechanisms, and legal remedies.

Given these baseline conditions, projects with significant land acquisition, labour demand, or environmental and social footprints may have disproportionate adverse impacts on vulnerable and marginalised groups if risks are not adequately identified and mitigated. International standards, including the UN Guiding Principles on Business and Human Rights, IFC and EBRD guidelines, emphasise the need for differentiated mitigation measures, inclusive engagement, and enhanced protections to ensure that vulnerable groups are not excluded from project benefits or disproportionately affected by negative impacts.

This baseline underscores the importance of integrating vulnerability-sensitive approaches into project design, stakeholder engagement, and grievance redress mechanisms to ensure respect for human rights and equitable outcomes.

## 19.3 Impacts, Mitigation, Management & Residual Impacts

### 19.3.1 Construction Phase

*Note: Several of the potential impacts on Human Rights, in particular, those affecting workers have already been assessed with mitigation included in section 17 "Labor and Working Conditions".*

During the construction phase, the Project will operate within a national human rights framework that is legally robust but unevenly implemented at the local level. The influx of contractors, subcontractors, and temporary workers, combined with time bound delivery pressures, may strain existing institutional oversight mechanisms. This could increase the risk of gaps between statutory human rights protections and their practical enforcement, particularly in relation to labour standards, grievance resolution, and community engagement. Without effective project level systems, there is a risk that workers and affected communities may have limited awareness of their rights or reduced access to remedy during construction activities.

#### 19.3.1.1 Indigenous Peoples

Under the UN Guiding principles, the rights of indigenous people should be protected. This includes ensuring prior, free informed consent is provided before any Project development is allow Under the UN Guiding Principles, the rights of Indigenous Peoples must be protected, including the requirement that free, prior, and informed consent be obtained before any project development is permitted on their land.

Uzbekistan is the most populous country in Central Asia. Although the most recent census was conducted in 1989, official estimates updated in 2017 indicate a total population of 32.1 million. Of this, ethnic Uzbeks account for just over 26.9 million people (83.8%), while ethnic Tajiks number approximately 1,544,700 (4.8%). Other significant minority groups include Kazakhs (803,400; 2.5%), Russians (750,000; 2.3%), Karakalpaks (708,800; 2.2%), Kyrgyz (274,400; 0.9%), Tatars (195,000; 0.6%), Turkmens (192,000; 0.6%), Koreans (176,900; 0.6%), and Ukrainians (70,700; 0.2%) (MRGI, 2021). Additional minority groups include Meskhetian Turks and Jews.

The majority of the population is nominally Sunni Muslim, while most members of the Russian minority are nominally Orthodox Christian. In practice, individuals across ethnic groups may also identify with smaller religious movements, such as Sufism, Ahmadiyya, and various forms of evangelical Christianity.

Although the nominally autonomous Republic of Karakalpakstan covers approximately 37% of Uzbekistan's territory, ethnic Karakalpaks constitute only about one-third of the population of Karakalpakstan and represent a very small proportion of the country's total population.

The ethnic Tajik population is widely believed to be larger than reflected in official statistics, as some Tajiks and Tajik speakers may self-identify as Uzbeks in order to improve career prospects.

Uzbekistan comprises a range of traditional populations of Turkic origin (Uzbeks, Kazakhs, Karakalpaks), Semitic origin (Bukhara Jews), and Iranian origin (Tajiks), as well as more recent minority groups that settled in the country during the Russian and Soviet periods, including Russians, Crimean Tatars, Meskhetian Turks, Koreans, and some Jews.

Since 1991, population movements have continued to significantly reshape the country's demographics. While many ethnic Uzbeks who had been working abroad, particularly in Russia and neighboring countries, have returned to Uzbekistan, several more recent minority groups, such as Russians, Crimean Tatars, and others, have emigrated in large numbers.

The only ethnic group known to inhabit the broader area is ethnic Turkmens. More than 150,000 ethnic Turkmens live in border regions of Uzbekistan, including Khorezm, Surkhandarya, and Karakalpakstan (IWPR, 2010).

However, based on the consultation process and desktop research, no Indigenous Peoples or ethnic minorities have been identified within or in the vicinity of the Project location. Consequently, no further assessment related to Indigenous Peoples or ethnic minorities has been undertaken.

#### 19.3.1.2 Child Labour and Young Workers

Construction activities typically involve labour-intensive tasks and extensive subcontracting arrangements, which may increase exposure to risks associated with child labour, particularly through informal recruitment channels or inadequate labour verification procedures. While systemic child labour has largely been eliminated in Uzbekistan, residual risks may remain where contractors or subcontractors rely on informal labour arrangements.

In accordance with IFC PS2, the Project will not employ children in a manner that constitutes child labour. The Project will ensure compliance with applicable national legislation and international labour standards regarding the minimum age of employment. No person below the minimum legal working age will be engaged in Project-related employment.

Where young workers (persons above the minimum working age but below 18 years of age) are employed, additional safeguards will be implemented to ensure that their employment does not interfere with their education, health, safety, or physical, mental, social, or developmental well-being. Young workers will not be assigned hazardous work, including activities involving exposure to dangerous machinery, hazardous substances, extreme temperatures, work at height, underground work, or other tasks classified as dangerous under national legislation or Project risk assessments.

Young workers will be subject to:

- age verification procedures prior to recruitment;
- documented parental/guardian consent where required under applicable legislation;
- restrictions on working hours and prohibition of night work where required;
- appropriate supervision and mentoring;
- assignment only to tasks suitable for their age, skills, and physical capacity; and
- inclusion within Project labour monitoring and contractor audits.

Contractors and subcontractors will be required to implement equivalent measures through contractual obligations, labour management procedures, and periodic compliance monitoring.

#### 19.3.1.3 Forced Labour

The construction phase may present risks related to forced or coerced labour if recruitment practices are not fully transparent or if workers are subjected to undue pressure related to job retention, wage withholding, or excessive overtime. Although national legislation criminalises forced labour, baseline conditions indicate that enforcement may be inconsistent, especially at subcontractor levels. Risks may arise if workers are recruited through intermediaries, if identity documents are retained, or if freedom to leave employment is restricted. Administrative or economic pressure on local labour markets could further exacerbate these risks during peak construction periods.

#### 19.3.1.4 Working Conditions

Construction activities inherently involve occupational health and safety risks, long working hours, and physically demanding tasks. Given the baseline challenges in enforcement of labour standards, there is potential for adverse impacts on workers' rights to safe and fair working conditions. These may include exposure to unsafe worksites, inadequate personal protective equipment, excessive working hours, delayed or unpaid wages, and insufficient access to rest facilities. Informal or temporary workers may be particularly vulnerable due to limited contractual protections and weaker access to grievance mechanisms. Such impacts could result in occupational injuries, health deterioration, and increased worker dissatisfaction.

#### 19.3.1.5 Privacy, Freedom of Expression, Association and Peaceful Assembly

Construction activities may give rise to risks related to civil and political rights, including the right to privacy, freedom of expression, freedom of association, and peaceful assembly.

The increased presence of contractors and security personnel, combined with site access controls and workforce management systems, may result in heightened monitoring of workers and visitors. If not properly governed, such measures could create perceptions of surveillance or discourage workers from freely expressing concerns, particularly in relation to working conditions, wages, or safety.

Freedom of expression may also be indirectly constrained where workers or community members fear retaliation or negative consequences for raising grievances or participating in consultations. This risk may be amplified in contexts with short-term contracts, subcontracted labour arrangements, or weakly institutionalised grievance mechanisms.

While freedom of association and collective bargaining risks are already addressed in Section 19.3.1.6, broader risks also extend to peaceful assembly, including informal worker gatherings or collective expression of concerns. Without clear safeguards, there is a risk that such activities could be discouraged or restricted at site level.

The Project will therefore require appropriate management measures, including transparent grievance mechanisms, non-retaliation policies, clear communication on data/privacy practices, and worker awareness training on rights related to expression, association, privacy, and peaceful assembly, in line with international human rights standards and the UN Guiding Principles on Business and Human Rights.

#### 19.3.1.6 Collective Bargaining and Freedom of Association

During construction, workers may face constraints in exercising freedom of association and collective bargaining rights, particularly in a context where independent trade union activity remains limited. Short-term contracts, subcontracting arrangements, and high labour turnover may reduce workers' ability or willingness to organise or raise collective concerns. There is a risk that grievances related to wages, working hours, or safety conditions may not be effectively channelled through representative mechanisms, increasing reliance on informal or individual dispute resolution approaches.

#### 19.3.1.7 Gender Inequality and Discrimination

The construction phase may exacerbate existing gender inequalities if employment opportunities, workplace conditions, and engagement processes are not gender sensitive. Women may face barriers to accessing construction related employment, particularly skilled or supervisory roles, and may be disproportionately confined to lower-paid or informal positions. Risks of discrimination, unequal pay, and exclusion from decision-making may persist. Additionally, the presence of a predominantly male workforce may increase risks of gender-based harassment or intimidation if adequate codes of conduct, training, and enforcement mechanisms are not in place.

#### 19.3.1.8 Right to Health and Safety (Community)

Construction activities may generate adverse impacts on the right to health and safety of surrounding communities. Increased dust, noise, traffic, and vibration may affect living conditions, particularly for residents in close proximity to construction areas. Heavy vehicle movements and temporary road diversions may elevate risks of traffic accidents and restricted access to services. Vulnerable groups, including children, elderly residents, and persons with pre-existing health conditions, may be disproportionately affected by environmental and safety risks if mitigation measures are insufficient or poorly communicated.

*Note: Potential impacts associated with this subject including assessments of risks are discussed in Chapter 18, Community Health, Safety and Security and therefore not discussed further in this section.*

#### 19.3.1.9 Land, Housing, and Property Rights

Where construction activities involve land acquisition, temporary land use, or access restrictions, there is a risk of adverse impacts on land, housing, and property rights. These may include physical or economic displacement, disruption to livelihoods, and reduced access to homes, businesses, or community facilities. Small enterprises may be particularly vulnerable due to limited legal recognition of tenure rights. Inadequate compensation, delays in payments, or lack of access to effective remedy could exacerbate socio-economic vulnerability during the construction phase.

*Note: Potential impacts associated with this subject including assessments of risks are discussed in Chapter 16, Land Acquisition and therefore not discussed further in this section.*

#### 19.3.1.10Access to Information and Public Participation

Construction phase impacts may be intensified if communities are not adequately informed about schedules, risks, and mitigation measures. Baseline conditions indicate variable awareness of participation rights, and construction related disruptions may heighten community concerns if information is not timely, accessible, and understandable. Language barriers, technical complexity, and insufficient outreach to vulnerable groups may limit meaningful participation. This could undermine trust, increase grievances, and restrict the ability of affected persons to influence decisions that affect their rights and living conditions.

#### 19.3.1.11 Rights of Vulnerable and Marginalised Groups

Construction activities may have disproportionate impacts on vulnerable and marginalised groups due to pre-existing socio-economic and institutional constraints. Low-income households, elderly persons, persons with disabilities, informal workers, women, and children may experience heightened exposure to employment exclusion, health and safety risks, access restrictions, and livelihood disruption. Limited physical accessibility, reduced participation in consultations, and weaker access to grievance mechanisms may further compound these risks. Without targeted mitigation measures, construction phase impacts may deepen existing inequalities and undermine the ability of vulnerable groups to benefit equitably from project-related opportunities.

### 19.3.2 Impact Assessment Summary – Human Rights during Construction

A summary of potential impacts related to human rights including labour working conditions within the Project area during construction and their effects on identified receptors are presented in following table including suggested mitigation measures and residual impacts after implementation of mitigations measures.

**Table 19-2 Impact Assessment Summary – Human Rights during Construction**

| Potential Impacts | Magnitude of potential impact | Rights Holders (receptors) | Sensitivity | Significance of impact | Significance of residual impact |
|---|---|---|---|---|---|
| Child Labour and Protection of young workers | Moderate | Children and young workers (persons below 18 years of age), particularly those vulnerable to economic exploitation or informal employment | High | Moderate | Low |
| Forced Labour | Moderate | Construction workers, subcontracted labour | High | Moderate | Low to Moderate |
| Working Conditions | High | Construction workers | High | Moderate | Low to Moderate |
| Privacy, Freedom of Expression, Association and Peaceful Assembly | Moderate | Construction workers | Medium | Moderate | Low |
| Collective Bargaining and Freedom of Association | Moderate | Construction workers | Medium | Moderate | Low |
| Gender Inequality and Discrimination | Moderate | Female workers, female community members | High | Moderate | Low |
| Right to Health and Safety (Community) | Moderate | Local residents, children, elderly, persons with health conditions | High | Moderate | Low |
| Land, Housing, and Property Rights | Moderate | Land users, tenants, small enterprises | High | Major | Low to Moderate |
| Access to Information and Public Participation | Moderate | Local community, vulnerable groups | Medium | Moderate | Low |
| Rights of Vulnerable and Marginalised Groups | Moderate | Low-income households, elderly, persons with disabilities, women, children | High | Moderate | Low to Moderate |

**Proposed Mitigation and Enhancement Measures**

Mitigation Measures for Child Labour and Young Workers:

- Prohibit the employment of children from below the minimum legal working age and ensure that no person under the age of 18 is engaged in hazardous work.
- Implement mandatory age verification procedures during recruitment and onboarding for all direct workers, contractors, subcontractors, and labour suppliers.

| Potential Impacts | Magnitude of potential impact | Rights Holders (receptors) | Sensitivity | Significance of impact | Significance of residual impact |
|---|---|---|---|---|---|
| • Include explicit child labour prohibition clauses and young worker protection requirements in contractor and subcontractor agreements.<br>• Maintain worker age records and conduct periodic labour audits to verify compliance.<br>• Ensure young workers (persons under 18 years of age) are only assigned non-hazardous tasks appropriate to their age, skills, and physical capacity.<br>• Prohibit young workers from undertaking activities involving:<br>- exposure to hazardous substances;<br>- operation of dangerous machinery or equipment;<br>- work at height;<br>- confined spaces;<br>- night work were prohibited by law;<br>- activities involving excessive physical strain or unsafe conditions.<br>• Establish appropriate supervision arrangements for young workers and ensure they receive relevant health and safety training.<br>• Ensure working hours for young workers comply with applicable legal requirements and do not interfere with education or development.<br>• Monitor contractors and subcontractors through labour inspections, documentation reviews, and worker interviews.<br>• Provide accessible grievance mechanisms for reporting suspected child labour or inappropriate employment of young workers.<br>• Conduct awareness training for contractors, recruitment agencies, and workers regarding child labour prevention and protection of young workers.<br><u>Mitigation measures for Forced Labour:</u><br>• Enforce transparent recruitment procedures with written contracts.<br>• Prohibit retention of identity documents or withholding of wages.<br>• Guarantee workers' freedom to leave employment.<br>• Monitor subcontractors for coercive practices and implement corrective actions.<br>• Conduct regular training for HR teams and contractors on forced labour risks.<br><u>Mitigation measures for Working Conditions:</u><br>• Implement comprehensive occupational health and safety (OHS) programs.<br>• Provide adequate Personal Protective Equipment (PPE) for all workers.<br>• Ensure proper sanitation, rest areas, and access to potable water.<br>• Monitor working hours to avoid excessive overtime.<br>• Ensure timely payment of wages and benefits.<br>• Include temporary and informal workers in all safety and health programs. | | | | | |

| Potential Impacts | Magnitude of potential impact | Rights Holders (receptors) | Sensitivity | Significance of impact | Significance of residual impact |
|---|---|---|---|---|---|
| • Regularly inspect worksites for hazards and compliance with safety standards.<br>Mitigation measures against Privacy, Freedom of Expression, Association and Peaceful Assembly:<br>• Establish clear rules governing collection, storage, and use of personal data of workers and visitors (e.g., ID records, biometrics if used, CCTV footage).<br>• Inform workers clearly about what data is collected and how it is used, in languages they understand.<br>• Limit surveillance practices to proportionate and necessary security purposes, with periodic review of necessity.<br>• Establish and maintain a confidential, accessible, and multilingual grievance mechanism covering workers and community members.<br>• Ensure non-retaliation policy is clearly communicated and enforced, protecting individuals who raise concerns.<br>• Provide multiple reporting channels (in-person, hotline, digital, anonymous options).<br>• Conduct regular toolbox talks and inductions reinforcing that workers can freely raise concerns without fear of dismissal or punishment.<br>• Encourage worker feedback mechanisms (e.g., worker committees, suggestion systems, periodic surveys).<br>Mitigation measures for Collective Bargaining and Freedom of Association:<br>• Provide accessible grievance and complaint mechanisms for all workers.<br>• Encourage engagement with recognised trade unions or worker representatives.<br>• Communicate workers' rights to organise clearly, including for subcontracted and temporary staff.<br>• Provide training on collective bargaining rights and dispute resolution.<br>• Facilitate dialogue between management and worker representatives on wages, working hours, and conditions.<br>Mitigation measures for Gender Inequality and Discrimination:<br>• Implement gender-sensitive recruitment policies to increase women's participation, including in skilled roles.<br>• Ensure equal pay for equal work and opportunities for promotion.<br>• Conduct workplace training on anti-discrimination, harassment, and gender sensitivity.<br>• Develop and enforce codes of conduct addressing harassment and intimidation.<br>• Provide reporting channels for gender-based complaints.<br>• Consider flexible working arrangements for women with caregiving responsibilities.<br>Mitigation measures for Right to Health and Safety (Community):<br>• Implement dust, noise, and vibration control measures, including barriers, water spraying, and equipment maintenance.<br>• Manage traffic and heavy vehicle movements safely, with temporary pedestrian routes.<br>• Communicate construction schedules, traffic diversions, and safety risks to local residents.<br>• Conduct regular monitoring of air, noise, and vibration levels near residential areas. | | | | | |

| Potential Impacts | Magnitude of potential impact | Rights Holders (receptors) | Sensitivity | Significance of impact | Significance of residual impact |
|---|---|---|---|---|---|
| • Provide information to vulnerable populations (children, elderly, persons with health conditions) on mitigation measures.<br>• Establish rapid response protocols for accidents or emergencies affecting the community.<br><u>Mitigation measures for Land, Housing, and Property Rights:</u><br>• Ensure fair and timely compensation for land acquisition or temporary land use.<br>• Minimise disruption to homes, businesses, and community facilities.<br>• Provide alternative access routes if temporary land use restricts mobility.<br>• Maintain transparent documentation of land use, compensation, and rights.<br>• Provide grievance mechanisms for disputes over land, property, or compensation.<br>• Engage with small businesses to ensure inclusion in mitigation measures.<br><u>Mitigation measures for Access to Information and Public Participation:</u><br>• Develop and maintain clear communication channels (hotlines, notice boards, meetings, local media).<br>• Translate technical information into local languages (Uzbek & Russian) and use plain language.<br>• Conduct regular consultations with affected communities, including vulnerable groups.<br>• Provide accessible updates on construction schedules, potential risks, and mitigation measures.<br>• Implement feedback mechanisms to allow communities to raise concerns and suggestions.<br>• Train community liaison officers to ensure inclusive engagement.<br><u>Mitigation measures for Rights of Vulnerable and Marginalised Groups:</u><br>• Identify vulnerable groups (low-income households, elderly, persons with disabilities, women, children) and monitor potential impacts.<br>• Ensure equitable access to employment, training, and project benefits.<br>• Adapt grievance mechanisms to be accessible to vulnerable groups.<br>• Provide support services to mitigate impacts on livelihoods or mobility.<br>• Conduct periodic monitoring and social audits to verify the effectiveness of mitigation measures.<br>• Include targeted measures in project communications, ensuring these groups are informed and able to participate. | | | | | |

### 19.3.3 Operation Phase

The Project's operations phase presents a number of potentially adverse impacts on human rights held by project workers and local community members, the majority of which are of a similar nature to construction phase impacts on human rights. These impacts are identified in the summary table below and assessed subsequently.

**Table 19-3 Aspects and Impacts – Human Rights during Operation**

| Aspect | Activity | Impacts | Rights Holders |
|---|---|---|---|
| Project operations | operations and maintenance | • Employment generation and changes in workforce composition, including long-term operational staff and contracted service workers<br>• Potential exclusion of local or vulnerable workers if recruitment is not transparent and inclusive | Direct employees, contracted and subcontracted workers, local job seekers |
| | | Occupational health and safety risks associated with routine operations, equipment use, maintenance activities, and exposure to physical, chemical, or ergonomic hazards | Direct employees, maintenance staff, contractors and subcontractors |
| | | Risks related to extended working hours, shift work, night work, and fatigue, potentially affecting worker health, safety, and well-being | Shift workers, operational staff, security and maintenance personnel |
| | | Labour rights risks arising from contractor and subcontractor management, including inconsistent application of labour standards, wages, benefits, and grievance access | Contracted workers, subcontracted workers, migrant or temporary workers |
| | | Workforce diversity, gender equality, and non-discrimination challenges, including unequal access to skilled roles, training, promotion, and decision-making positions | Female workers, vulnerable and marginalised groups, all employees |
| | | Residual risks of forced labour or child labour through third-party contractors or informal service arrangements if due diligence and monitoring are inadequate | Contracted and subcontracted workers, young workers, vulnerable households |
| | | Impacts on the right to an adequate standard of living through wage levels, job security, access to social protection, and continuity of employment | Employees and their households, low-income workers |
| | | Potential gender-specific risks, including workplace harassment, limited access to grievance mechanisms, and unequal working conditions | Female employees, women employed by contractors, surrounding communities |

Note: the zone of influence for most of the human rights impacts will be largely within the surrounding communities and areas within a 5km radius.

**Table 19-4 Impacts Assessment Summary – Human Rights during Operation**

| Potential Impacts | Magnitude of Impact | Rights Holders (Receptors) | Sensitivity | Significance of Impact | Significance of Residual Impact |
|---|---|---|---|---|---|
| Workforce Composition | Moderate | Direct employees, contracted/subcontracted workers, local job seekers | Medium | Moderate | Low |
| Occupational Health and Safety (OHS) | Moderate | Direct employees, maintenance staff, contractors, subcontractors | High | Moderate | Low |
| Extended Working Hours, Shift Work, Fatigue | Moderate | Shift workers, operational staff, security, maintenance personnel | High | Moderate | Low |
| Contractor and Subcontractor Labour Management | Moderate | Contracted/subcontracted workers, migrant or temporary workers | High | Moderate | Low |
| Workforce Diversity, Gender Equality, Non-Discrimination | Moderate | Female workers, vulnerable and marginalised groups, all employees | High | Moderate | Low |
| Residual Risks of Forced or Child Labour | Low | Contracted/subcontracted workers, young workers, vulnerable households | High | Moderate | Low |
| Right to Adequate Standard of Living | Moderate | Employees and households, low-income workers | Medium | Moderate | Low |
| Gender-Specific Risks (Harassment, Unequal Conditions) | Moderate | Female employees, women employed by contractors, surrounding communities | High | Moderate | Low |

**Proposed Mitigation and Enhancement Measures**

Mitigation measures against Employment and Workforce Composition:

- Implement transparent and inclusive recruitment processes that prioritise local employment, with a defined target range for local workforce participation (e.g., a majority share of total employment, subject to project context and labour availability).
- Establish clear HR policies governing recruitment, promotion, and retention to ensure non-discrimination and equal opportunity, including measurable indicators for workforce diversity and equity.

| Potential Impacts | Magnitude of Impact | Rights Holders (Receptors) | Sensitivity | Significance of Impact | Significance of Residual Impact |
|---|---|---|---|---|---|
| • Monitor workforce composition to ensure fair representation such as Proportion of local vs. non-local employees, Percentage of women in the total workforce and in supervisory/management positions, Representation of vulnerable groups (where legally permissible and practically feasible) and progress against agreed diversity and inclusion targets over time<br>• Provide training and career development programs for local and vulnerable groups.<br><br><u>Mitigation measures for Occupational Health and Safety (OHS):</u><br>• Maintain and enforce OHS management systems and regular safety audits.<br>• Provide PPE, emergency response training, and safe work procedures.<br>• Conduct routine hazard assessments and corrective actions.<br>• Include contractors and subcontractors in OHS compliance programs.<br>• Encourage reporting of safety incidents and near-misses.<br><u>Mitigation measures for Extended Working Hours, Shift Work, Fatigue:</u><br>• Schedule shifts to prevent excessive working hours and fatigue.<br>• Monitor workload and provide rest breaks.<br>• Implement fatigue management programs.<br>• Encourage workers to report health or fatigue concerns without retaliation.<br><u>Mitigation measures for Contractor and Subcontractor Labour Management:</u><br>• Include labour and working condition requirements in all operational contracts and service agreements.<br>• Require contractors to comply with national labour legislation, IFC PS2, and Project labour standards.<br>• Establish clear roles and responsibilities for labour management oversight within the O&M Company.<br>• Conduct periodic labour compliance audits and site inspections of contractors.<br>• Require contractors to maintain grievance mechanisms aligned with the Project Worker Grievance Mechanism.<br>• Take corrective actions, including contractual remedies, in cases of non-compliance.<br><u>Mitigation measures for Workforce Diversity, Gender, and Non-Discrimination:</u><br>• Implement a Human Resources Policy with explicit commitments to non-discrimination and equal opportunity.<br>• Ensure fair recruitment, promotion, and remuneration practices regardless of gender, ethnicity, or employment status.<br>• Provide gender-sensitive training, including workplace behaviour and harassment awareness.<br>• Ensure equal access to training, safety information, and grievance mechanisms for all workers.<br>• Provide gender-appropriate welfare facilities, including sanitation and rest areas. | | | | | |

| Potential Impacts | Magnitude of Impact | Rights Holders (Receptors) | Sensitivity | Significance of Impact | Significance of Residual Impact |
|---|---|---|---|---|---|
| • Monitor workforce diversity indicators and address identified gaps.<br>Mitigation measures for Forced Labour and Child Labour:<br>• Prohibit forced labour and child labour through Project policies aligned with ILO Conventions and IFC Performance Standard 2 (PS2).<br>• Verify all workers' age and identity documentation during recruitment and contractor onboarding to ensure no employment of children below the minimum age.<br>• Prohibit retention of identity documents and payment of recruitment fees by workers under any circumstances.<br>• Include explicit clauses in all contractor and labour supply agreements prohibiting forced labour and child labour, in line with IFC PS2 requirements.<br>• Ensure that workers aged 18 and above only are engaged in hazardous work, with strict adherence to PS2 provisions on occupational health and safety.<br>• Where workers aged 18–18+ but considered young workers may be present, ensure they are not assigned hazardous tasks, are subject to restricted working hours, and are provided close supervision and appropriate protection measures.<br>• Conduct periodic audits of labour agents and contractors to verify compliance with forced labour and child labour requirements, including working conditions and supervision arrangements.<br>• Provide targeted training to HR personnel, contractors, and labour intermediaries on identifying, preventing, and managing risks of forced labour, child labour, hazardous work restrictions, and working hour limitations in line with IFC PS2.<br>• Integrate community awareness programmes on child rights, legal minimum working age, and the importance of education to prevent child labour at the community level.<br>• Ensure that community engagement and awareness-raising activities are incorporated into the Labour Management Plan (LMP) so that contractor recruitment practices and workforce engagement are aligned with responsible hiring standards and community expectations.<br>Mitigation measures for Right to Adequate Standard of Living:<br>• Provide adequate welfare facilities at the airport, including sanitation, drinking water, rest areas, and medical facilities.<br>• Ensure access to safe transport arrangements for night-shift and emergency-duty staff where required.<br>• Maintain clean, safe, and well-managed staff facilities through regular inspections.<br>• Ensure contractors provide equivalent welfare standards for their employees.<br>• Establish procedures for workers to raise concerns related to welfare conditions.<br>Mitigation measures for Gender Specific Risks:<br>• Implement and enforce a Code of Conduct applicable to all staff and contractors.<br>• Develop and adopt a GBVH/SEA/SH Policy for the operational phase.<br>• Provide mandatory training on GBVH prevention and respectful workplace behaviour.<br>• Ensure confidential and survivor-centred grievance and reporting mechanisms. | | | | | |

| Potential Impacts | Magnitude of Impact | Rights Holders (Receptors) | Sensitivity | Significance of Impact | Significance of Residual Impact |
|---|---|---|---|---|---|
| • Apply disciplinary measures for violations of the Code of Conduct.<br>• Ensure gender-sensitive design and management of welfare facilities.<br>• Apply all relevant gender mitigation measures implemented during construction to the operational phase. | | | | | |

## 19.4 Monitoring

The following table presents a brief overview of monitoring requirements to assess actualized project impacts and mitigation and enhancement measures.

**Table 19-5 Human Rights Monitoring Requirements (Construction and Operations)**

| Indicator | Source of information | Frequency Construction /Operation |
|---|---|---|
| Structural H&S, HR and Gender Policies | Date of implementation & proof of top management commitment to respecting human rights. | At the start of construction and operation |
| Number of grievances pertaining to unfair recruitment within nearby communities | Community grievance log | Monthly during construction and operations |
| Number of grievances pertaining to unequitable access to employment benefits | Worker grievance log | Monthly during construction and operations |
| Number of grievances pertaining to indecent working conditions | Worker grievance log | Monthly during construction and operations |
| Number of significant H&S incidents and quarterly trends in total H&S incidents | Accident logs; Occupational health logs | Monthly during construction and operations |
| Number of grievances and/or observation of forced labour | Community grievance logs, worker grievance logs and labour audit logs | Monthly during construction and operations |
| Number of grievances, observations, or confirmed cases related to child labour or non-compliance with young workers' protection requirements (including hazardous work, excessive working hours, or inadequate supervision) | Worker grievance logs, Community grievance logs, Labour audit reports, Contractor compliance records | Monthly during construction and operations |
| Number of incidents involving harassment and violence against men and women within the project workforce | Community grievance logs, worker grievance logs | Monthly during construction and operations |
| Number of incidents involving harassment and violence of men and women within nearby communities by project personnel | Community grievance logs, worker grievance logs | Monthly during construction and operations |

# 20.0 Transboundary Impacts

The proposed new Tashkent International Airport is located in the Tashkent Region, approximately 20 km from the border with Kazakhstan to the north. Given the proximity to an international boundary, the potential for transboundary environmental and social impacts has been considered as part of this ESIA.

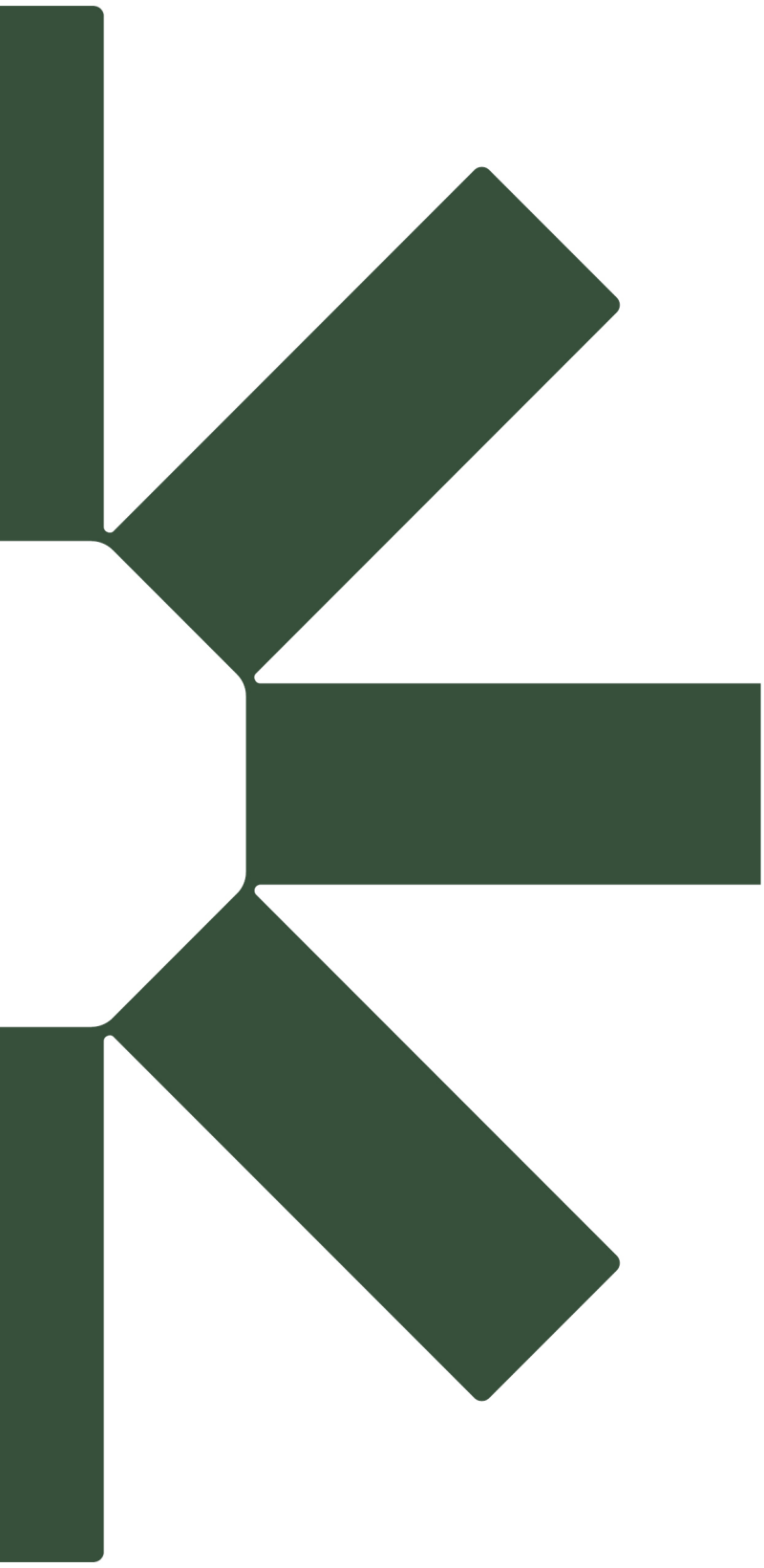
The assessment indicates that the Project is not expected to result in significant adverse transboundary impacts during either the construction or operational phases. Construction-related impacts, including dust, noise, vibration, traffic movements and wastewater generation, will be temporary, localised and confined to the vicinity of the Project site.

During operation, the principal environmental aspects with the potential for wider spatial influence are aircraft noise, air emissions and greenhouse gas emissions. Aircraft noise modelling demonstrates that operational noise impacts are confined to the airport environs and associated flight corridors within Uzbekistan and are not predicted to extend into Kazakhstan at levels that would result in significant adverse impacts. Similarly, the air quality assessment indicates that emissions from aircraft, airport operations and associated road traffic disperse rapidly and remain localised, with no significant deterioration in ambient air quality anticipated at the international border.

The Project does not involve abstraction from, or discharge to, international rivers or other shared water resources, and no transboundary impacts on surface water or groundwater resources are anticipated. Waste management, wastewater treatment and other utility services will be managed within Uzbekistan in accordance with applicable national requirements.

While the Project will facilitate international air travel and aircraft movements between Uzbekistan and neighbouring countries, these activities form part of established international civil aviation operations and do not constitute transboundary environmental impacts for the purposes of environmental impact assessment.

Based on the findings of the specialist studies undertaken as part of this ESIA, including the air quality, aircraft noise, hydrology and biodiversity assessments, the Project is not expected to give rise to adverse transboundary environmental or social impacts. Accordingly, no significant transboundary effects have been identified that would warrant further transboundary environmental assessment or consultation.



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