

BAKU METRO EXPANSION PROJECT GREEN LINE

Waste Management Plan (WMP)

Prepared for Baku Metropolitan Closed JSC

Quality Information

Prepared by	Checked by	Approved by
Gürkan Özbek	Elif Ayyüce Erkmen	Özkan Hayta
Elif Ayyüce Erkmen	Ekin Aydın	
Ahmet Esat Aygün	Zeynep Betül Ünal	
Ekin Aydın		
Zeynep Betül Ünal		

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The Baku Metropolitan Closed Joint-Stock Company

Prepared by:

GREEN Mühendislik Danışmanlık ve Tic. Ltd. Şti.

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List of Acronyms

ACM	Asbestos-Containing Material
AIIB	Asian Infrastructure Investment Bank
BCEP	Baku City Executive Power
CJSC	Closed Joint-Stock Company
CLO	Community Liaison Officer
E&S	Environment and Social
EHS	Environmental, Health and Safety
ESAP	Environmental and Social Action Plan
ESHS	Environmental, Social
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GIIP	Good International Industry
IFC	International Finance Corporation
KPI	Key Performance Indicator
MENR	Ministry of Ecology and Natural Resources
NCR	Non-Conformance Report
PDAS	Pre-Demolition Asbestos Survey
PIU	Project Implementation Unit
SDMP	Spoil Disposal Management Plan
SPS	Safeguard Policy Statement
STAT	State Statistical Committee of the Republic of Azerbaijan
TBM	Tunnel Boring Machine
WMP	Waste Management Plan

1. INTRODUCTION

1.1 Project Description

The Government of the Republic of Azerbaijan, through Baku Metropolitan Closed Joint-Stock Company (“Baku Metro” or “BM”), is implementing Phase II of the Baku Metro Expansion Project (“BMEP”), which includes the extension of the Green Line within the urban area of Baku. The Green Line Extension is planned to be financed by the Asian Infrastructure Investment Bank (AIIB) and is being developed in accordance with applicable national legislation and international standards.

The Green Line Extension comprises approximately 7.4 km of fully underground alignment and four new underground stations (Y-14, Y-15, Y-16 and Y-17), extending from Khatai to Hazi Aslanov. The alignment is designed to improve east–west connectivity across densely populated residential districts and to increase operational redundancy within the metro network. Stations Y-15 and Y-17 include civil structures that were partially constructed during earlier project phases and will be integrated, upgraded, and completed under the Project.

This Waste Management Plan (WMP) has been prepared specifically for the Green Line Extension to support the systematic identification, classification, handling, and disposal of all waste streams generated during construction. The Plan forms part of the Project’s environmental and social documentation and applies to all permanent and temporary works associated with the Green Line, including tunnels, stations, pre-existing structures to be upgraded, ancillary facilities, construction compounds, and access areas. Excavated material will be managed in accordance with this WMP and the Spoil Disposal Management Plan (SDMP). This WMP establishes the minimum requirements for the classification, segregation, temporary storage, transportation, tracking and reporting of Class A, Class B and Class C spoil. The SDMP provides further details on spoil characterisation, quantities, testing requirements, transport routes, reuse opportunities and disposal arrangements. Project Location is shown in Figure 1.



Figure 1: Green Line Extension

1.2 Purpose of This Waste Management Plan

The purpose of this WMP is to ensure that all waste generated during construction of the Green Line Extension is managed in a manner that protects human health, minimises environmental impact, and complies with the applicable national legislation of the Republic of Azerbaijan and the requirements of the Asian Infrastructure Investment Bank (AIIB) Environmental and Social Framework (ESF), in particular Environmental and Social Standard 1 (ESS3), including Paragraph 38 on Resource Efficiency and Paragraph 39 on Pollution Prevention.

The scope of this Plan covers all construction phases of the four underground stations (Y-14, Y-15, Y-16 and Y-17) and the approximately 7.4 km tunnel alignment, including pre-construction site preparation, tunnel boring machine (TBM) operations, cut-and-cover excavation, structural and architectural works, and electromechanical installation. The Plan applies to the Contractor, all subcontractors, and any third-party waste handlers engaged under the Project.

During the construction phase, the Contractor shall develop and implement a detailed, site-specific Waste Management Plan (WMP), as construction methods are finalised and specific waste streams are quantified.

Table 1. Summary of Waste Streams – Green Line Extension Construction

Waste Code	Description	Category
17 05 04	Soil and stones other than those mentioned in 17 05 03 (Non-hazardous)**	Non-Hazardous
17 05 03*	Soil and stones containing hazardous substances (Contaminated Spoil)**	Hazardous
01 05 04	Freshwater drilling muds and wastes (Relevant for TBM slurry/bentonite)	Non-Hazardous
17 06 05*	Construction materials containing asbestos (e.g., roof sheets, tiles)	Hazardous
17 06 01*	Insulation materials containing asbestos (e.g., pipe lagging)	Hazardous
17 01 01	Concrete (from demolished station structures)	Non-Hazardous
17 04 05	Iron and steel (rebar and structural scrap)	Non-Hazardous
17 02 01	Wood (formwork and demolition timber)	Non-Hazardous
13 01 10*	Non-chlorinated hydraulic oils (from TBM hydraulics)	Hazardous
15 02 02*	Absorbents, filter materials, wiping cloths contaminated by hazardous substances	Hazardous
08 04 09*	Waste adhesives and sealants containing organic solvents (TBM tail seals)	Hazardous
16 06 01*	Lead batteries (from site machinery)	Hazardous

Waste Code	Description	Category
20 03 01	Mixed municipal waste (Canteen/Office refuse)	Non-Hazardous
15 01 01	Paper and cardboard packaging	Non-Hazardous
18 01 03*	Wastes whose collection and disposal is subject to special requirements to prevent infection (Medical waste from on-site first aid)	Hazardous

** Managed under in the Spoil Disposal Management Plan

2. NATIONAL LEGISLATION AND LENDER'S REQUIREMENTS

2.1 Overview

This chapter summarises the applicable national legislative requirements, the Lender's policy requirements, and relevant international good practice that have informed the structure, scope, and implementation approach of this TMP. Further details on the legal and institutional framework for the Project are provided in Chapter 4 (Legal and Institutional Framework) of the ESIA.

The Contractor and Baku Metro shall comply with all applicable national legal requirements. Where there is a difference between national requirements, the AIIB Environmental and Social Framework (ESF) 2024, and international good practice, the Project shall apply the more stringent requirement.

2.2 National Legislation

The materials and waste management framework for the Project is developed in accordance with the applicable national legislation of the Republic of Azerbaijan.

Under Azerbaijani national legislation, materials and waste management activities are governed by several key legal instruments, including:

- **Law on Environmental Protection (1999)**¹ – establishes the general framework for environmental protection, pollution prevention, and sustainable use of natural resources, including the management of waste and hazardous substances;
- **Law on Industrial and Domestic Waste (1998)**² – regulates the collection, transportation, storage, reuse, and disposal of industrial and municipal waste, and defines operator responsibilities for waste minimization and environmentally sound management;
- **Law on Hazardous Waste (2001)**³ – provides the legal basis for classification, handling, and disposal of hazardous waste to prevent risks to human health and the environment;
- **Law on Environmental Safety (1999)**⁴ – defines principles of environmental safety and the management of potentially hazardous activities;
- **Law on Sanitary and Epidemiological Welfare (1992, as amended)**⁵ – includes hygiene and safety provisions related to the handling and storage of materials and waste;
- **Relevant decrees and normative acts of the Cabinet of Ministers and the Ministry of Ecology and Natural Resources (MENR)**⁶ – specify permitting, reporting, and technical requirements for waste handling, transport, and disposal.
 - **Cabinet of Ministers Resolution No. 41 (2003):** Specifically addresses the "Passportization" and inventory tracking of hazardous waste.

¹ Republic of Azerbaijan. 1999. Law on Environmental Protection. Baku.

² Republic of Azerbaijan. 1998. Law on Industrial and Domestic Waste. Baku.

³ Republic of Azerbaijan. 2001. *Law on Hazardous Waste*. Baku.

⁴ Republic of Azerbaijan. 1999. Law on Environmental Safety. Baku.

⁵ Republic of Azerbaijan. 1992. Law on Sanitary and Epidemiological Welfare. Baku.

⁶ Republic of Azerbaijan. Various years. Decrees and Normative Acts of the Cabinet of Ministers and the Ministry of Ecology and Natural Resources. Baku.

- **Resolution No. 167 (2005):** Sets the rules for the transportation of hazardous substances and waste.
- **Resolution No. 13 (2008):** Requires waste generators to maintain a continuous, systematic accounting of the volumes produced, stored, and transported.

A unique and mandatory requirement in Azerbaijan is Waste Passportization (Resolution No. 41).

- Every producer of hazardous waste (which would include the contractor in contaminated zones) must create a "Passport."
- Passport document must confirm the waste's hazard degree, chemical composition, and physical properties.
- Contaminated spoil must not legally transported or disposed of without an approved waste passport.

On the other hand, municipal waste management in Baku (handled primarily by "Tamiz Shahar" JSC) is governed by service contracts and municipal cleaning norms rather than individual "passports."

Under Cabinet of Ministers Resolution No. 13 (2008), enterprises must conduct a regular inventory of the waste they generate. This records the amount of municipal waste produced and provide this data to the State Statistics Committee and MENR.

When a truck leaves the site, it must carry a Waste Shipment Record (often called a Yük Qaiməsi or Waybill in local terminology, but functionally acting as a manifest). For hazardous streams, this is typically a multi-part document (4 or 5 copies) that requires signatures from three parties; waste producer, transporter and disposer. After waste disposal one stamped copy is returned to the Generator (i.e Contractor) for legal proof that the waste was disposed of correctly⁷.

The Contractor shall maintain a Waste Tracking Log to reconcile dispatched volumes against received volumes at the disposal site, which will be available for MENR and Lender inspections. Monthly Waste Summary and the Annual Waste Report are legally mandated by the accounting rules established in Resolution No. 13.

2.3 International Legislation

The Project is subject to the AIIB Environmental and Social Standard 3 (ESS3) on Resource Efficiency and Pollution Prevention and Management, which requires the application of the waste management hierarchy (avoidance, minimisation, reuse, recycling, recovery, and responsible disposal) and the use of pollution prevention techniques consistent with Good International Industry Practice (GIIP).

In line with the IFC Environmental, Health and Safety (EHS) Guidelines⁸, Section 1.5 – Hazardous Materials Management and Section 1.6 – Waste Management (IFC, 2007), the project will adopt measures to ensure that hazardous materials are properly identified, labelled, stored, transported, and disposed of to prevent harm to human health and the environment. The project will maintain an inventory of hazardous substances, provide secondary containment, and implement spill prevention and emergency response procedures.

⁷ By the time Project is implemented, Azerbaijan might integrate digital environmental reporting. In this case same process must be followed digitally.

⁸ International Finance Corporation (IFC). 2007. Environmental, Health and Safety (EHS) Guidelines: General EHS Guidelines. Washington, DC: World Bank Group.

The project will also apply the waste management hierarchy outlined by the IFC, prioritizing prevention, minimization, reuse, and recycling prior to disposal. Waste will be segregated at source, appropriately stored, and disposed of through licensed and environmentally sound facilities. Continuous monitoring and documentation will be maintained to ensure compliance and to support ongoing improvements in waste management performance.

3. ROLES AND RESPONSIBILITIES

The distribution of roles and responsibilities for the effective implementation of this plan are summarised below:

To ensure the Waste Management Plan is executed effectively, the following hierarchy of responsibility is established:

- **PIU (Baku Metro):** Overall compliance, regulatory liaison, and final approval of disposal facilities.
- **Contractor:** Daily implementation of the WMP, including site screening, segregation, and maintenance of the Waste Shipment Records and Waste Tracking Log.
- **Environmental Specialist:** Responsible for day-to-day environmental oversight of waste management activities across all construction sites, including verification of waste segregation at source, inspection of hazardous waste storage areas, coordination of waste characterisation waste labelling, maintenance of the Waste Shipment Records and Waste Tracking Log, and liaison with licensed waste transporters and disposal facilities.
- **Engineer (Supervision Consultant):** Reviews and approves the Contractor's waste-related procedures, Waste Tracking Log, and Waste Shipment Records prior to construction and on an ongoing basis; conducts independent site inspections to verify segregation, hazardous waste storage, and the use of licensed transporters and disposal facilities; reports findings and NCRs to the PIU.
- **Contractor's ESHS Manager:** Leads the preparation and implementation of the WMP on behalf of the Contractor across all station sites and the tunnel alignment; ensures correct waste characterisation, licensing of transporters and disposal facilities, and timely submission of monthly waste reports to the Engineer and PIU.

4. WASTE MANAGEMENT

4.1 Before Construction

Prior to construction, the Contractor shall also: (i) identify and confirm licensed waste disposal facilities for each waste category (inert, non-hazardous, and hazardous); (ii) establish designated on-site waste storage areas with appropriate segregation infrastructure (colour-coded skips, containment bunds for liquid wastes); (iii) develop and issue site-specific waste management procedures to all relevant personnel; and (iv) obtain any required permits or notifications under national legislation, including Waste Passports under Resolution No. 41, for the transport and disposal of hazardous waste.

For stations where building demolishing will be done, Pre-Demolition Asbestos Survey (PDAS) shall be conducted.

Pre-Demolition Asbestos Survey (PDAS): A certified specialist will conduct intrusive sampling at stations B-5, B-6B, and Y-16. No demolition may commence until the PDAS report is finalized and all Asbestos-Containing Materials (ACMs) are demarcated.

4.2 Construction

During the construction phase, waste management shall follow the procedures described below across all four station sites and the tunnel alignment. Given that construction activities will occur simultaneously at multiple locations, each site shall maintain its own waste records and storage infrastructure, coordinated centrally by the Project's Environmental, Health and Safety (EHS) Officer.

Waste Segregation: All waste shall be segregated at source into the following categories: (i) inert excavated material (soil and rock); (ii) non-hazardous construction and demolition waste (concrete, masonry, scrap metal, timber, packaging); (iii) municipal waste from workers and offices; (iv) hazardous waste (used lubricating oils, hydraulic fluids, fuel-contaminated soil, chemical containers, batteries, and fluorescent lamps). Separate, labelled and covered containers shall be provided at each construction site for each category. Mixing of hazardous and non-hazardous wastes is strictly prohibited.

Class-Based Spoil Management: Excavated material shall be classified as Class A (Inert), Class B (Impacted) or Class C (Hazardous) in accordance with the classification framework established in the SDMP. Class A material comprises spoil with contaminant concentrations below the applicable Azerbaijan Maximum Allowable Concentrations (MACs). Class B material comprises impacted spoil with concentrations above the applicable MACs but below the relevant US EPA Industrial Regional Screening Levels (RSLs). Class C comprises spoil exceeding the applicable Industrial RSLs or Vapor Intrusion Screening Levels (VISLs), or exhibiting hazardous characteristics.

Table 2. Class-Based Spoil Management Requirements

Spoil Class	Segregation and Temporary Storage	Transport and Destination	Tracking and Reporting
Class A (Inert)	Store separately from Class B and Class C spoil on compacted ground. Apply dust and surface-runoff controls where necessary.	Prioritise beneficial reuse where suitable. Transport surplus material to WMC LLC or another approved facility.	Record the source, quantity, date, vehicle details and reuse or disposal destination. Report quantities monthly.
Class B (Impacted)	Store separately from Class A and Class C spoil on a minimum	Evaluate for structural backfill or non-hazardous terrestrial placement based on the	Maintain the WAC/TCLP analytical profile, Contaminated Soil

	1.5 mm HDPE liner, with covering and leachate collection. Temporary storage shall not exceed 90 days.	applicable WAC/TCLP results. Where reuse or placement is not approved, transport the material in covered, leak-proof trucks to WMC LLC or another approved facility, subject to the receiving facility's acceptance criteria.	Register, Waste Transfer Notes, GPS records and facility receipts. Reconcile the records quarterly and report quantities monthly.
Class C (Hazardous)	Store separately from Class A and Class B spoil on a minimum 1.5 mm HDPE liner, with covering and leachate collection. Temporary storage shall not exceed 90 days.	Transport in covered, leak-proof trucks to WMC LLC or another licensed and approved hazardous-waste facility, subject to the applicable WAC/TCLP results and the receiving facility's acceptance criteria. Each shipment shall be accompanied by the required Waste Passport and Waste Transfer Note.	Maintain the WAC/TCLP analytical profile, Waste Passport, Contaminated Soil Register, Waste Transfer Notes, GPS records and facility receipts. Reconcile the records quarterly and report quantities monthly.

Waste Transportation: All off-site waste movements shall be documented using waste transfer notes (waste manifests) that record the date, waste type, volume, transporter details, and receiving facility. Only licensed waste carriers and licensed disposal facilities shall be used. Waste manifests shall be retained for a minimum of five years and made available to AIIB upon request.

Waste Minimisation at Source: The Contractor shall implement procurement controls to minimise packaging waste and shall prioritise the use of returnable containers for chemical products where practicable. Surplus materials shall be re-allocated between sites to reduce waste generation. Please refer to Traffic Management Plan (TMP) and Spoil Disposal Management Plan (SDMP) for details.

5. MONITORING AND REPORTING

This section sets out the monitoring programme, training requirements, and reporting obligations necessary to verify the effective implementation of this WMP and to demonstrate compliance with AIIB ESF requirements. Monitoring activities shall be conducted across all four station construction sites (Y-14, Y-15, Y-16 and Y-17) and at the tunnel alignment. The overall monitoring framework is designed to enable early identification of non-compliance and to provide the data required for periodic environmental and social reporting to AIIB.

5.1 Reporting

The Contractor shall maintain a Waste Tracking Log for each of the four station construction sites and the tunnel alignment. Separate records shall be maintained for Class A, Class B and Class C spoil. For each spoil movement, the Log shall record, as a minimum:

- unique load reference;
- excavation source and location;
- spoil classification;
- quantity or weight;
- relevant screening or laboratory analysis reference;
- date and time of dispatch;
- transporter name and licence details;
- vehicle registration number;
- Waste Transfer Note reference;
- Waste Passport reference, where applicable;
- receiving facility and destination;
- date and time of receipt; and
- gate receipt or weighbridge confirmation issued by the receiving facility.

The Log shall be updated within 24 hours of each movement. The quantities of Class A, Class B and Class C spoil generated, temporarily stored, reused, transported and disposed of shall be reconciled weekly. Any unexplained discrepancy shall be investigated and reported to the Engineer within 48 hours.

A summary of waste management performance shall be included in the Contractor's monthly EHS report, submitted to the Engineer and PIU. The summary shall include total volumes of each waste category generated per site; volumes diverted from landfill through reuse or recycling; any incidents of non-compliance (illegal disposal, unauthorised waste movement, spills); corrective actions taken; and training statistics. The PIU shall consolidate these monthly summaries into the semi-annual Environmental and Social Monitoring Report submitted to AIIB, in accordance with the Project's ESMP reporting framework.

Monthly Waste Summary and the Annual Waste Report are legally mandated by the accounting rules established in Resolution No. 13.

The monthly waste summary shall present separate balances for Class A, Class B and Class C spoil at each work site. The summary shall identify the quantities generated, temporarily stored, reused, transported and disposed of during the reporting period and cumulatively. It shall also report rejected loads, missing or incomplete transfer documentation, classification changes, storage non-conformances, unauthorised mixing and the status of related corrective actions.

Detailed chain-of-custody and quarterly reconciliation requirements for excavated material are provided in Section 5.3 of the Spoil Disposal Management Plan (SDMP).

5.2 Monitoring

Regular inspections based on the Key Performance Indicators (KPIs) given in Table 3 will verify that the site is operating in compliance with the WMP.

(i) Daily Site Inspections: The site EHS Officer shall conduct daily inspections of all waste storage areas, spoil stockpile zones, and maintenance areas to verify correct segregation, container integrity, secondary containment status, and labelling. Inspection findings shall be recorded in the site EHS inspection log.

(ii) Weekly Waste Quantity Reconciliation: The Contractor shall reconcile volumes of waste generated against volumes removed from site on a weekly basis. Unexplained discrepancies between waste manifest and waste shipment records (removed volumes) shall be investigated and reported to the Engineer within 48 hours.

(iii) Monthly EHS Audits: The Engineer shall conduct monthly EHS audits covering waste management compliance across all active construction sites. Audit findings shall be recorded and non-conformances issued where required. The Contractor shall submit a written corrective action response within five working days of receiving an audit report.

(iv) Disposal Facility Audits: The Contractor shall carry out an initial audit of each proposed licensed disposal and recycling facility prior to first use, and thereafter annually. Audit records shall be retained in the project EHS documentation system. Any facility found to be operating in non-compliance with its licence conditions or GIIP shall be immediately removed from the Project's approved supplier list.

Table 3. Key Performance Indicators (KPIs)

KPI Reference	Performance Indicator	Unit	Target	Reporting Frequency
KPI-01	Total waste generated (by category)	m ³ or Tonnes	Track & Record	Monthly
KPI-02	Inert material diverted to reuse	%	> 80% (or as per project target)	Monthly
KPI-03	Non-hazardous waste diverted to recycling	%	> 50% (min. packaging/scrap)	Monthly
KPI-04	Hazardous waste non-conformances	Number	0 (Zero)	Monthly
KPI-05	Monthly Waste Summary and the Annual Waste Report submission to MENR	%	100% submittance	Monthly
KPI-06	Waste-related spill incidents	Number	0 (Zero)	Monthly
KPI-07	Personnel received waste training	%	100% of site staff	Monthly
KPI-08	Waste Manifest/Shipment Reconciliation	%	100% of hazardous waste shipments accounted for	Weekly

KPI Reference	Performance Indicator	Unit	Target	Reporting Frequency
KPI-09	Waste Manifest / Passport compliance	%	100%	Monthly

6. TRAINING

All personnel involved in waste-generating activities, waste handling, or waste transport shall receive waste management training prior to commencing work on site. Training shall be delivered by the Contractor's EHS Officer and shall cover, as a minimum: (i) the requirements of this WMP and the applicable national legislation; (ii) waste classification and segregation procedures; (iii) correct use and labelling of waste containers; (iv) procedures for identifying and responding to suspected contaminated material; (v) emergency spill response procedures; and (vi) the roles and responsibilities of each party under this Plan.

Training records, including dates, attendee names, and topics covered, shall be maintained in the project EHS documentation system. Refresher training shall be provided at intervals not exceeding six months or following any significant change in the scope of works, waste management procedures, or applicable regulatory requirements. Subcontractor personnel shall receive equivalent training prior to commencing on-site activities.

