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Environmental & Social
Impact Assessment
(ESIA) for Almaty
Railroad Bypass Project,
Kazakhstan

Cultural Heritage Management
Framework

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Cultural Heritage Management Framework
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CONTENTS

1.	INTRODUCTION	1
1.1	PURPOSE OF THE CULTURAL HERITAGE MANAGEMENT FRAMEWORK	1
1.2	PROJECT OVERVIEW	2
1.2.1	Early-Stage Conditions	2
1.3	PROJECT CULTURAL HERITAGE CONTEXT	3
2.	LEGISLATION AND ASSESSMENT FRAMEWORK	5
2.1	INTERNATIONAL FINANCE CORPORATION (IFC) PS8: CULTURAL HERITAGE	5
2.2	APPLICATION OF KEY NATIONAL LEGISLATION	6
2.2.1	On the Protection and Use of Historical and Cultural Sites - Law of the Republic of Kazakhstan 2019	6
2.2.2	Determining the Protection Zone, Zone for Regulation of Development and Zone of the Protected Natural Landscape - Order of the Minister of Culture and Sports of the Republic of Kazakhstan 2020	6
3.	IMPLEMENTATION PROCEDURE	8
4.	CULTURAL HERITAGE SCREENING CHECKLIST	8
5.	CHANCE FINDS PROCEDURE	9
5.1	OBJECTIVES	9
5.2	DEFINITIONS	9
5.3	ANTICIPATED IMPACTS FROM PROJECT CONSTRUCTION ACTIVITIES	9
5.4	PROCEDURES AND MANAGEMENT ACTIONS	10
5.4.1	Procedure for unmarked graves	10
5.5	MITIGATION HIERARCHY	13
5.6	IMPLEMENTATION ARRANGEMENTS	13
6.	KURGAN ARCHAEOLOGICAL LANDSCAPE MITIGATION AND MANAGEMENT GUIDELINES	14
6.1	HERITAGE CONTEXT	14
6.2	PURPOSE AND OBJECTIVES	15
6.3	HERITAGE MITIGATION AND MANAGEMENT MEASURES	16
LIST OF TABLES		
	TABLE 3-1: NATIONAL LAWS OF RELEVANCE TO CULTURAL HERITAGE	5
	TABLE 6-1: LIST OF IDENTIFIED CULTURAL HERITAGE RESOURCES	15
LIST OF FIGURES		
	FIGURE 1-1: LOCATION OF KEY CULTURAL HERITAGE RESOURCES	4
	FIGURE 6-2: LOCATION OF KEY CULTURAL HERITAGE RESOURCES AND SUGGESTED NO-GO ZONE MARKERS (DASHED RED AND ORANGE)	18

1. INTRODUCTION

The Asian Infrastructure Investment Bank (“AIIB”) and the International Finance Corporation (“IFC”), collectively referred to as the “Lenders”, are considering financing the construction and operation of the Almaty Railroad Bypass (the “Project”), which is under development by the Kazakhstan Temir Zholy Joint Stock Company (the “Developer” or “KTZ”).

Environmental Resources Management (S) Pte Ltd (“ERM”) has been commissioned to prepare this document, Cultural Heritage Management Framework (CHMF) as part of the Supplementary Environmental and Social Impact Assessment (Supplementary ESIA) for the Lenders’ consideration. This document has been developed to outline the cultural heritage management framework for the Almaty Railroad Bypass project, as part of the broader ESIA process.

1.1 PURPOSE OF THE CULTURAL HERITAGE MANAGEMENT FRAMEWORK

The purpose of this CHMF is to protect cultural heritage from the adverse impacts of Project activities and support its preservation. The applicability of the CHMF is managed through the Environmental and Social Management System (ESMS). During construction and operation phases of the Project, KTZ will consider the potential impacts to cultural heritage and will apply the provisions listed in the CHMF.

The CHMF is split into three documents:

- **Cultural Heritage Screening Checklist (Section 4 and Appendix A):** A practical tool designed to assist KTZ in meeting their regulatory requirements and any funding body conditions through identification and assessment of potential impacts on cultural heritage early in the project planning process.
 - The screening phase of the risks and impacts identification process should identify the extent and complexity of potential cultural heritage risks and impacts in the Project’s Area of Influence (AoI). If the screening indicates potential adverse impacts, further analysis will be necessary to ascertain the nature and scale of these impacts and proposed mitigation measures. Competent professionals should be retained to carry out such analysis as part of the assessment.
- **Chance Find Procedure (Section 5):** A procedure to inform users how to manage cultural heritage that is unexpectedly discovered during project construction.
 - The Chance Find Procedure (CFP) is a project-specific procedure that outlines what will happen if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation. The procedure includes record keeping and expert verification procedures, management actions for if a tangible cultural heritage is encountered unexpectedly during the Project construction or operation, and implementation arrangements for mitigating such impacts.
- **Kurgan Archaeological Mitigation and Management Measures Guideline (Section 6):** A guiding document to manage and conserve the recorded kurgan sites in the vicinity of the Project during construction or operation activities.

A guideline specifically targeted to provide mitigation and management recommendations to avoid or minimise adverse impacts to the recorded and identified kurgan sites in the vicinity of the Project boundaries.

The CHMF should be integrated into the Project's Construction ESMS, and all CH awareness training (CH Screening Checklist, Chance Finds Procedure and Kurgan Archaeological Landscape Mitigation and Management Guideline) should apply.

Cultural Heritage Awareness Induction/Training

All personnel involved in the project works should undergo heritage awareness training as part of the site induction to ensure they understand their responsibilities and obligations. This training should include:

- Legal responsibilities;
- Summary of recorded heritage sites (including significant landforms and archaeological kurgans);
- Explanation of the mitigation and management recommendations for the protection of recorded kurgan sites outlined in this document (including location of 'No-Go Zones'); and
- Explanation of the Chance Finds Procedure (CFP) for the Project.

It is recommended that Margulan Institute of Archaeology are engaged to provide input into or deliver this induction.

1.2 PROJECT OVERVIEW

The Almaty Railroad Bypass (henceforth "the Project") is a vital railway infrastructure project designed to enhance connectivity between Kazybek Bek and Zhetygen, traversing the districts of Talgar, Iliy, Karasay, Zhambyl and Alatau City. As part of the Trans-Caspian International Transport Route—commonly known as the Middle Corridor—this project aims to alleviate the current railway overload and logistical bottlenecks around the city of Almaty.

The Project involves the construction of railway bypass with a total track length of 130km of new railway track (of which approximately 75km is the main track between Kazybek Bek and Zhetygen. The remaining 55km serves as maintenance tracks / branch lines / interchange lines etc.), five (5) stations including three (3) new and two (2) extended/modernised, three (3) main substations¹, three (3) switches to guide trains from one track to another, a single-circuit 10 kV overhead line, 13 bridges, five (5) rail overpasses and one (1) road crossing.

The Project's resource and design requirements, as well as its potential (and/or existing) impacts on stakeholders, are documented in the Supplementary ESIA Report.

1.2.1 EARLY-STAGE CONDITIONS

To understand the presence and potential of cultural heritage within the Project's AoI, the following resources were reviewed:

- Review of the National Environmental Impact Assessment (EIA) report (InTech, 2023), Section 17.7 "Tangible assets, objects of historical and cultural heritage (including architectural and archaeological), landscapes", which had used studies undertaken by Antique-KZ.

¹ One existing at Kazybek Bek within the RoW, one proposed greenfield at Zhana Arna within the RoW, and one existing in PS-Alma-500 outside the RoW and not belonging to KTZ. The PS-Alma-500 will be connected to Zhana Arna substation via a 1.9km 220 kV OHTL, of which, approximately 500m is within the RoW.

- Review of previous assessments undertaken by national Cultural Heritage authorities and consultancies:
 - Letter No. 54/20-381, dated 03/12/2014 from Margulan Institute of Archaeology.
 - Letter No. AE-2023/003, dated 27/03/2023 from Antique-KZ.
 - Letter No. 54/20-480, dated 01/11/2024 from Margulan Institute of Archaeology.
- Consultation through Key Informant Interviews with Poligram and Margulan Institute of Archaeology representatives.
- Field survey report by consulting archaeologists (Margulan University Institute of Archaeology) done in 2014 and 2024, and site visit by ERM on 30 October 2024.

1.3 PROJECT CULTURAL HERITAGE CONTEXT

The Project has identified **three (3) Cultural Heritage assets**² along a surveyed corridor through an assessment conducted by Margulan Institute of Archaeology in 2014³ and supplemented in 2024⁴. Based on the baseline findings from Margulan Institute of Archaeology, the cultural heritage sites include mounds which date to the early Iron Age and are referred to as 'Kurgan' burial grounds. Refer to **Chapter 7** of the **Supplementary ESIA** for further information. Details of the findings can be found in in **Section 6** 'Kurgan Archaeological Mitigation and Management Measures Guideline' of this CHMF.

The study finds that the closest site is located approximately 200m from the centreline. The study investigated 120m from both sides of the alignment (240m CH survey corridor). The construction works, excluding the location of the 14 quarries, are carried out within this 240m corridor. The location of the closest quarries (N°2 and N°3) does not intersect with the CH site's protection zones. Refer to **Figure 1-1**. The following **Section 3** outlines the legislative framework and client obligations for protection of cultural heritage, including the rules for determining protection zones.

² The three archaeological (kurgan) sites are not included in the State List of Historical and Cultural Monuments.

³ Letter No. 54/20-381, dated 03/12/2014 from Margulan Institute of Archaeology

⁴ Letter No. 54/20-480, dated 01/11/2024 from Margulan Institute of Archaeology

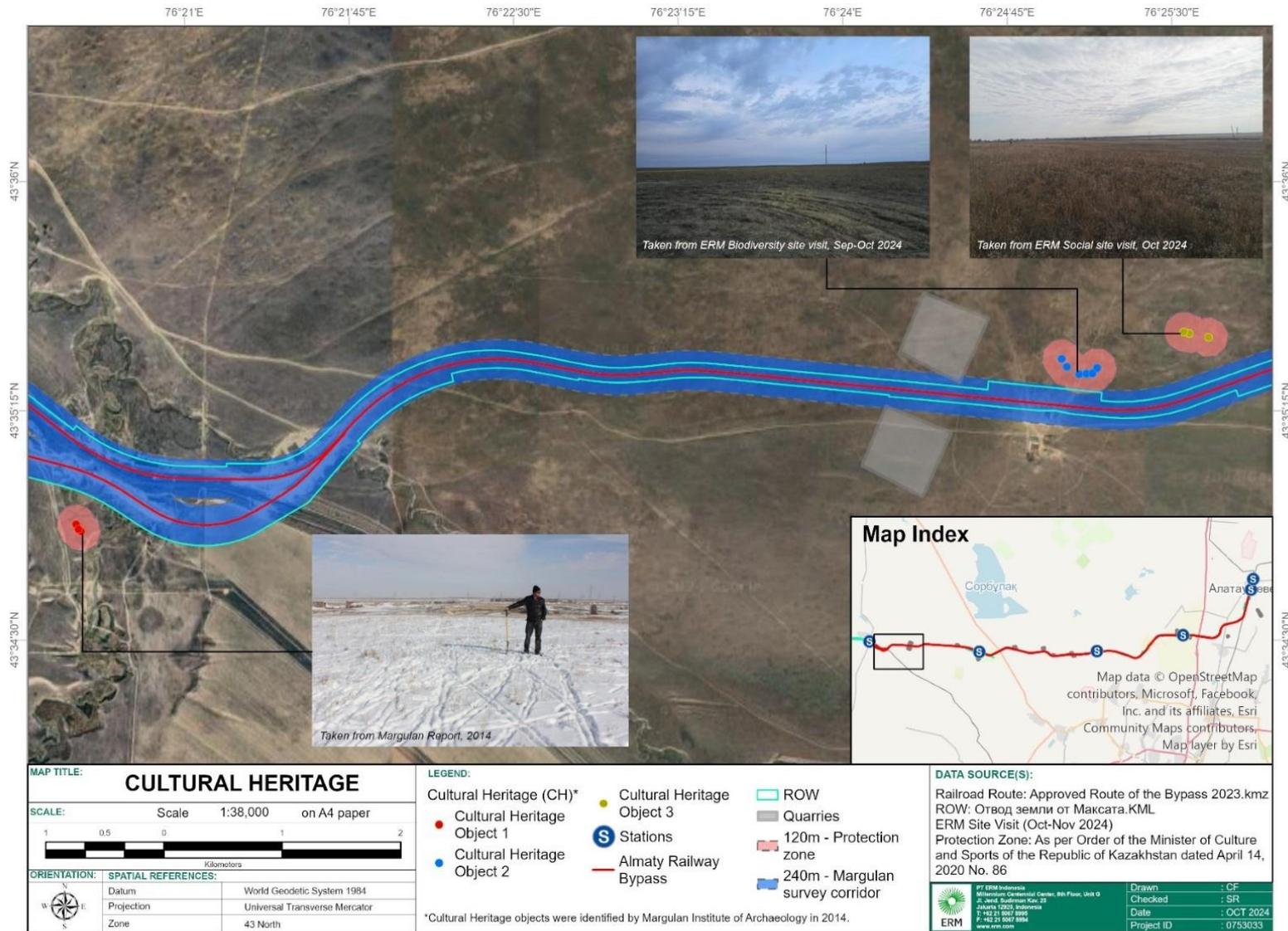


FIGURE 1-1: LOCATION OF KEY CULTURAL HERITAGE RESOURCES

2. LEGISLATION AND ASSESSMENT FRAMEWORK

This assessment has been prepared in accordance with the following leading practice guidelines and treaties, as well as the national statutory framework of Kazakhstan outlined in **Table 2-1**.

TABLE 2-1: NATIONAL LAWS OF RELEVANCE TO CULTURAL HERITAGE

Title	Year
Law	
Environmental Code of the Republic of Kazakhstan No. 212.	2007
Law on Culture of the Republic of Kazakhstan No. 207 (as amended by No. 446-V in 2016).	2006
Law on Protection and Use of Objects of Historical and Cultural Heritage of the Republic of Kazakhstan No. 1488-XII (as amended by No. 479-V in 2016).	1992
“On the protection and use of historical and cultural heritage sites”, Law of the Republic of Kazakhstan dated 26 December 2019 № 288-VI ЗРК.	2019
“On approval of the Rules for determining the protection zone, the zone for regulation of development and the zone of the protected natural landscape of the monument of history and culture and the regime for their use”, Order of the Minister of Culture and Sports of the Republic of Kazakhstan dated 14 April 2020 No. 86. Registered with the Ministry of Justice of the Republic of Kazakhstan on 15 April 2020 № 20395.	2020
Policy	
UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage.	1994
UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage.	2012
IFC Environmental and Social Performance Standards (PS).	2012
IFC Guidance Note 8: Cultural Heritage.	2012

2.1 INTERNATIONAL FINANCE CORPORATION (IFC) PS8: CULTURAL HERITAGE

IFC PS8 emphasizes the importance of safeguarding both tangible and intangible forms of cultural heritage during project design and execution. Tangible cultural heritage includes movable and immovable objects, archaeological sites, and structures with historical, cultural, or artistic significance. Intangible heritage covers cultural knowledge and practices tied to traditional lifestyles. The key objectives of IFC PS8 include:

- To protect cultural heritage from the adverse impacts of project activities and support its preservation.
- To promote the equitable sharing of benefits from the use of cultural heritage.

The scope of application for IFC PS8 includes:

- Clients to incorporate considerations of cultural heritage into their Environmental and Social Management System (ESMS) from the onset of project planning.

- Cultural heritage is defined to include tangible elements (like historic sites and artifacts), unique natural features (such as sacred groves), and certain intangible cultural aspects (like traditional knowledge).
- The application of the standard, irrespective of legal protections and does not extend to Indigenous Peoples' cultural heritage, which is covered under a separate standard.

2.2 APPLICATION OF KEY NATIONAL LEGISLATION

The following two key laws and orders outline the framework for protecting historical and cultural heritage sites in the Republic of Kazakhstan and establishes the rules for determining the protection zone, the zone for regulating the development and the zone of the protected natural landscape of a historical and cultural monument and the mode of their use. Refer to **Chapter 7.3** of the Supplementary ESIA for further information.

2.2.1 ON THE PROTECTION AND USE OF HISTORICAL AND CULTURAL SITES - LAW OF THE REPUBLIC OF KAZAKHSTAN 2019

The "On the protection and use of historical and cultural sites - Law of the Republic of Kazakhstan dated 26 December 2019" law describes the framework for the protection and use of historical and cultural heritage sites in the Republic of Kazakhstan. It outlines the purpose, objectives, and legal regulations associated with these efforts. Specifically, the law aims to ensure the revival, preservation, and popularisation of historical and cultural heritage sites.

Monuments of historical and cultural heritage in Kazakhstan can be categorised on their significance, which is as followed:

1. **Local Significance:** These monuments have importance primarily within a specific locality, such as a city or region. They reflect the history and culture of that area.
2. **National (Republican) Significance:** These monuments hold importance for the entire nation of Kazakhstan. They may relate to key historical events, notable figures, or shared cultural heritage that is recognised across the country.
3. **International Significance:** Monuments classified with international significance have value that extends beyond national boundaries. They are recognised for their contributions to global cultural heritage and may be candidates for listings such as UNESCO World Heritage status.

The law also outlines the process regarding the State List of Historical and Cultural Monuments, which includes the approval criteria, ensuring formal recognition, the registration process, and the criteria for inclusion in the State List. Importantly, of direct relevance to this project, this law applies to the discovery of 'Valuable Objects' and outlines the procedure for notification of an unexpected ('chance') find.

2.2.2 DETERMINING THE PROTECTION ZONE, ZONE FOR REGULATION OF DEVELOPMENT AND ZONE OF THE PROTECTED NATURAL LANDSCAPE - ORDER OF THE MINISTER OF CULTURE AND SPORTS OF THE REPUBLIC OF KAZAKHSTAN 2020

The "Rules for determining the protection zone, the zone for regulation of development and the zone of the protected natural landscape of the monument of history and culture and the regime for their use", in the Order of the Minister of Culture and Sports of the Republic of Kazakhstan dated 14 April 2020 No. 86, establishes the rules for determining the protection

zone, the zone for regulating the development and the zone of the protected natural landscape of a historical and cultural monument and the mode of their use.

The Order states that, to ensure the safety and historical integrity, for the protected zone of a monument of historical and cultural significance, economic activity and construction shall be prohibited, except for the use of special measures aimed at preserving the monument. Furthermore, it states that new construction work shall not be carried out in the security zone. It emphasizes that the protection zone of the historical and cultural monument shall be marked by security signs or an open strip, or fences, or shrub plantations along their borders.

I. Determining the protection zone

The boundaries of protected zones are directly relevant to the Project. Based on the Order No. 86 by the Minister of Culture and Sports of the Republic of Kazakhstan, the methodology for determining the boundaries of **protected zones** shall be calculated for the following:

1. *A monument of town planning and architecture, the construction of monumental art, sacred objects up to 40 meters high shall be surrounded by a security zone equal to two values of the distance from the ground to its highest point.*
2. *A monument of town planning and architecture, the construction of monumental art, sacred objects with a height of 40 meters shall be surrounded by a security zone equal to one distance from the ground to its highest point.*
3. *A monument of archeology, **sacred objects** shall be surrounded by a protected zone of 40 meters from the extreme boundaries of the detection of cultural layers of a historical and cultural monument, with a group of monuments - from the external extreme boundaries of historical and cultural monuments.*
4. *Ensembles and complexes, sacred objects shall be surrounded by a security zone of 20 meters from the boundaries of the extreme object of the monument of history and culture.*

Note: Cultural heritage objects of mounds and burial grounds of the Iron Age shall be considered sacred objects, and shall be protected by a protection zone of 40m.

II. Determining the zone for regulation of development

The **zone for regulating the development** of a historical and cultural monument shall be determined equal to one size of the protected zone. The development regulation zone of the historical and cultural monument shall be fixed from the edge of the protected zone of the historical and cultural monument.

Note: The zone for regulating the development of historical and cultural monument shall be equal to one size of the protected zone of 40m, and thus, should also be of 40m.

III. Determining the zone of the protected natural landscape

The **zone of the protected natural landscape** of the historical and cultural monument shall be determined equal to the size of the development regulation zone. The protected natural landscape zone shall be fixed from the edge of the building control zone.

Note: The zone for the protected natural landscape shall be equal to one size of the development regulation zone of 40m, and thus, should also be of 40m.

IV. Determining the total zone of protection for sacred objects of critical cultural heritage

Determining the **total zone of protection for sacred objects of critical cultural heritage**

The total boundary of the protection zone for sacred objects cultural heritage, such as mounds and burial grounds of the Iron Age shall be, as per the Order of the Minister of Culture and Sports of the Republic of Kazakhstan dated 14 April 2020 No. 86, on the “rules for determining the protection zone, the zone for regulation of constructions and the zone of the protected natural landscape of the monument of history and culture and the regime for their use”, equal to **a minimum of 120m**, which refers to **40m protection zone + 40m zone for regulating the development + 40m for the zone of the protected natural landscape**.

3. IMPLEMENTATION PROCEDURE

As construction works have already begun, earthworks in the 14 quarries⁵ (located outside the 240m protection corridor) have begun, and thus it is imperative to apply the following mitigation measures proposed below:

1. If new works / activities are being undertaken in previous undisturbed areas, conduct a Cultural Heritage Screening. The **Cultural Heritage Screening Checklist** can be found in **Section 4**. If a risk is identified, a licensed CH authority, such as Margulan Institute or other, can advise the client on requirements.
2. In the event that cultural heritage sites or materials (or suspected cultural sites or materials) are discovered during earthworks, development operations or similar activities, apply the Chance Finds Procedure. The **Chance Finds Procedure** can be found in **Section 5**.
3. Impact avoidance by adhering to the Kurgan Archaeological Landscape Mitigation and Management Guide. No project activities should occur within the demarcated ‘No Go’ zones. The **Kurgan Archaeological Landscape Mitigation and Management Guide** can be found in **Section 6**.

4. CULTURAL HERITAGE SCREENING CHECKLIST

This Cultural Heritage Screening Checklist is a practical tool designed to assist KTZ in meeting their regulatory requirements and any funding body conditions through identification and assessment of potential impacts on cultural heritage early in the project planning process. By systematically screening for historical, archaeological, or culturally significant elements within additional or greenfield project areas (that did not form part of the original Cultural Heritage Screening/Impact Assessment), the Proponent can ensure compliance with Kazakhstan heritage protection laws, avoid costly delays, and demonstrate due diligence in safeguarding cultural resources.

This checklist supports informed decision-making, risk mitigation, and proactive engagement with regulators, cultural heritage authorities, and stakeholders, to promote responsible and sustainable development. Refer to **Appendix A**.

⁵ Information of the 14 quarries is shared in Section 2.4 of the Project Requirements in the Supplementary ESIA, and the geo-referenced location of the 14 quarries provided as an Appendix in the LRP.

5. CHANCE FINDS PROCEDURE

5.1 OBJECTIVES

This Chance Finds Procedure (CFP) has been developed for the Almaty Bypass Railway Project ('the Project') as a procedure to inform users how to manage cultural heritage that is unexpectedly discovered during project construction.

The CFP, as described in IFC PS8, is a process that prevents chance finds from being disturbed until an assessment by a competent specialist is made and actions consistent with PS8 requirements are implemented.

This CFP:

- Sets out actions and steps to be taken, and a chain of notification to follow for the discovery of cultural heritage.
- Provides management options around site protection.
- Outlines requirements for recording, expert verification process, and communication with regulatory authorities.

5.2 DEFINITIONS

Cultural/Archaeological heritage categories vary widely, but can be captured by the following:

- Burial Places - locations used by local communities in the past to inter their dead. Normally, burial places have negligible surface visibility and are comprised of human bones which are usually easily distinguishable from surrounding sub-surface sediments. In contrast to most animal bone discoveries, buried human bones are usually found intact. Human beings are large organisms, and many human bones seem remarkably large when first observed. However, human burials can be incomplete, or may consist of scattered, partially decayed bones which fragment easily.
- Artefacts - any portable (e.g., moveable) object that is the product of human activity. An archaeological artefact may be artefact scatters, or an isolated find found on the ground or buried beneath the surface. Common examples of artefacts are intact pottery and potshards, worked stone tools and stone waste flakes, and metal objects or fragments such as tools and weapons. They may also include bone (as a worked material or food residue), wood and textile if the soil conditions are appropriate. Artefact scatters are likely present around habitation sites but can also occur in sites by themselves. Isolated artefacts consist of single artefact finds that usually represent lost or discarded tools.
- Structural Remains - refers to standing or ruined historic structures. In the Project area, they are unlikely to include intact historic buildings or unrecorded standing buildings but may include ruins or foundations.
- Unexploded ordnance (UXO) - whilst not strictly considered cultural heritage, refers to explosive weapons (e.g., bombs, bullets, shells, grenades, land mines, naval mines, etc.) that did not explode when they were employed and still pose a risk of detonation, potentially many decades after they were used or discarded.

5.3 ANTICIPATED IMPACTS FROM PROJECT CONSTRUCTION ACTIVITIES

Impacts on cultural sites/structures have been identified during the Supplementary ESIA, and are anticipated as follows:

- Uncovering further cultural heritage resources that could be irreplaceable archaeological resources that cannot be removed without causing irreparable damage or destruction.

5.4 PROCEDURES AND MANAGEMENT ACTIONS

5.4.1 PROCEDURE FOR UNMARKED GRAVES

During the construction phase (and land clearance/excavation period) in the instance that any unmarked graves are uncovered, the following steps are to be undertaken:

1. Where the contractor (any worker at any level) discovers an unmarked grave, they will immediately stop work and report it to their immediate supervisor.
2. The 'stop works' area around the suspected human remains must be fenced off using appropriate temporary fencing and protected from further disturbance.
3. "No-Go Zone" signage must be attached to the fencing at all times to prevent the area being disturbed further
4. The supervisor will verify the grave, immediately contact security to secure the area, and inform the EPC Contractor EHS In-Charge.
5. The EPC Contractor EHS In-Charge will contact the KTZ Project EHS In-Charge who will investigate and excavate the grave in accordance with local procedures. The EPC Contractor EHS In-Charge will keep KTZ Project EHS In-Charge up to date with relevant progress.
6. A suitably qualified **forensic or physical anthropologist** must identify the bones as human or non-human as soon as possible. If it is determined that the bones are human, the forensic anthropologist may work in collaboration with an archaeologist to determine if the bones are archaeological or forensic.
7. If the bones are confirmed as human remains, contact the local police immediately.
8. The archaeologist will notify the Authority if the remains are suspected to be archaeological in nature, and they will complete a formal recording of the find that will include photos with scale of the object and of the general context /setting, and GPS coordinates.
9. Archaeological or heritage management advice or plan should be prepared by the archaeologist in consultation (extent of advice will be dependent on the nature and type of cultural heritage identified).
10. A formal notification will be prepared at this stage and submitted to the Authority along with the archaeological or heritage management advice/plan and a site recording form, if required.
11. The Project's Construction Management Plan will be updated according to provision of heritage guidance, if required. Any associated changes should be included in site inductions.
12. Resumption of works will take place once written clearance is provided by the police and the Authority, if required.

Should human remains be found for which the death could be attributed to suspicious or unusual circumstances, local police should be immediately notified.

Contacts of the KTZ Project EHS In-Charge

- Name:

- Designation:
- Mobile Number:

5.4.1.1 PROCEDURE FOR ARCHAEOLOGICAL RESOURCES

1. Initial Work Suspension

During the construction phase (and land clearance/excavation period) in the instance that any items are uncovered which may be of archaeological or historical interest, the following steps are to be undertaken:

- Where the contractor (any worker at any level) notes any items of potential cultural heritage, they will immediately stop what work in the area of the find and report it to their immediate supervisor.
- A 'stop works' or protection area around the suspected cultural heritage find must be fenced off using appropriate temporary fencing and protected from further disturbance. The diameter of the protection zone around the cultural heritage find should be proportional to the type of find and the works occurring in the vicinity. For example, if the cultural heritage find is a suspected burial mound, the whole of the mound feature should be included in the protection area.
- "No Go Zone" signage must be attached to the temporary fencing at all times to prevent the area being disturbed further.
- The supervisor will verify the potential find, immediately contact security to secure the area, and inform the EPC Contractor EHS In-Charge, providing all relevant details (such as the exact location, name of person discovering and context of discovery).
- The EPC Contractor EHS In-Charge will ensure their officers immediately gather any additional information needed and inform KTZ Project EHS In-Charge.

2. Notification to Authorities in Charge

The EPC Contractor EHS In-Charge will promptly and fully report the relevant information to the Archaeological Institute and KTZ Project EHS In-Charge concurrently via the following contact details:

Margulan Institute of Archaeology ("Margulan"):

- Telephone Number: +7 (727) 272-06-99

This contact information should be checked and updated by the EPC Contractor EHS In-Charge every six (6) months or whenever there is a change recognised.

3. Site Visit of the Authorities in Charge

Officers and specialists from Margulan, will visit the site and conduct a preliminary assessment to define the significance of the findings and decide subsequent actions. It is noted that:

- If the findings are identified of minor significance and/or of small scale, survey and collection of archaeological relics will be carried out immediately by the specialists during the visit and the site will be handed over back to the Project as soon as practicable.
- If the findings are determined of higher level of significance and/ or larger scale, the suspension of work will be required by the authorities on site. An official letter from authorities notifying the specific period (e.g., seven (7) days to a month), exact location

and area of work suspension will be issued and sent to the Project immediately after the site visit.

The EPC Contractor EHS In-Charge should be assigned to accompany, support and ensure health and safety protection for the authorities during their site visit. KTZ Project EHS In-Charge can provide support as needed. During the site visit, the minutes of chance finds information receipt will be signed between all parties.

4. Official Work Suspension

If suspension of work is officially decided by the authorities, the EPC Contractor EHS In-Charge will:

- Inform in writing the contractor the specific period, exact location and area of work suspension as required by the authorities.
- Recommend the contractor to maintain a security guard at the site until an Archaeological Survey and Excavation is completed by the authority in charge.

The contractor and its workforce must suspend all work in the immediately affected area following the above instruction.

5. Archaeological Survey and Excavation

In case the findings are determined of higher level of significance, an Archaeological Survey and Excavation will be planned, approved and implemented by the authorities.

6. Resumption of Work

Construction works could resume when permission is provided by the authorities (e.g., minutes of the site hand over signed between the authorities and KTZ/joint statement of completion. There will be regular dialogue between KTZ/ Authorities and the EPC through weekly site meetings where up-dates on progress of any excavation will be made known. As part of these weekly meetings, the joint statement of completion and the minutes of meetings permitting the resumption of work will be prepared. This documentation will serve as the evidence base for the EPC to claim any Change Orders/Standing time and other delays due to the find.

5.4.1.2 PROCEDURE FOR UNMARKED ORDNANCE

During the construction phase (and land clearance/excavation period) in the instance that any metal items are uncovered which may be UXO, the following steps are to be undertaken:

- Where the contractor (any worker at any level) notes any items that may be UXO, they will immediately stop what work in the area of the find and report it to their immediate supervisor.
- A 'stop works' or protection area around the suspected cultural heritage find must be fenced off using appropriate temporary fencing and protected from further disturbance. The diameter of the protection zone around the cultural heritage find should be proportional to the type of find and the works occurring in the vicinity.
- "No Go Zone" signage must be attached to the temporary fencing at all times to prevent the area being disturbed further.
- The supervisor will verify the potential find, immediately contact security to secure the area (establishing a perimeter), and inform the EPC Contractor EHS In-Charge, providing all

relevant details (such as the exact location, name of person discovering and context of discovery).

- The EPC Contractor EHS In-Charge will ensure their officers immediately gather any additional information needed and inform KTZ Project EHS In-Charge.

The EPC Contractor EHS In-Charge will call the relevant UXO clearance contractor **and** inform the local police and military.

The contractor responsible for UXO clearance will assess the risk and provide confirmation of UXO safety before any construction/land disturbance activities can recommence.

Resumption of work will commence once the statement of completion and minutes of meetings permitting the resumption of work are completed. As per the procedure for archaeological chance finds, updates will be discussed between KTZ/ Authorities and the EPC through weekly site meetings where progress will be made known. As part of these weekly meetings, the joint statement of completion and the minutes of meetings permitting the resumption of work will be prepared. This documentation will serve as the evidence base for the EPC to claim any Change Orders/Standing time and other delays due to the find.

5.5 MITIGATION HIERARCHY

The mitigation hierarchy is a widely used leading practice framework that aims to limit the degree of impact that will result from an action or development. The following three steps should be followed in order and to the greatest extent possible before progressing to the next step:

1. Avoid - If the boundaries of the site have been delineated, an attempt must be made to redesign the proposed development to avoid the cultural heritage findings.
2. Minimise the impact to the cultural heritage find; or
3. Mitigate - If it is not feasible to avoid the site through redesign, it will be necessary to sample the site using a data collection program prior to its loss. This could include surface collection and/or excavation.

It is recommended that avoidance is prioritised for highly significant archaeological sites and material. Once impacts have been avoided or minimised as much as possible through project redesign, remaining unavoidable impacts should be mitigated through test and salvage excavation.

5.5.1.1 SITE PROTECTION

It may be possible to protect the site through the installation of barriers during the time of the development and/or possibly longer-term. This could include the erection of high visibility fencing around the site or covering the site area with a geotextile and then capping it with fill. The exact prescription would be site-specific and provided by the competent specialist (heritage professional).

5.6 IMPLEMENTATION ARRANGEMENTS

5.6.1.1 ROLES AND RESPONSIBILITIES

All contracting personnel associated and operating within the Project are **responsible** for the application of this CFP.

- KTZ and Poligram are responsible for siting and designing a project to avoid damage to cultural heritage and to ensure all discovered cultural heritage property is preserved.
- KTZ Project EHS In-Charge and with assistance from EPC Contractor EHS In-Charge shall supervise excavations and other construction works. They must report up to the upper management of any cultural heritage finds.
- Margulan Institute of Archaeology. The Margulan Institute of Archaeology ensures that cultural heritage resources in Kazakhstan are conserved and protected.

5.6.1.2 TRAINING

All personnel, especially those working on earth movements and excavations, are to be inducted on the identification of potential cultural heritage and the relevant actions for them with regards to this CFP during the construction of the Project. KTZ shall collaborate with Margulan Institute or another CH expert/authority in relation to training potential CH identification.

5.6.1.3 RECORD KEEPING

The KTZ Project EHS In-Charge, or other relevant person(s) will be responsible for ensuring a Chance Find Report Form (*Annex M*) is completed and logged for every chance find. A photo log, copies of communications with decision making authorities, conclusions and recommendations/guidance, and implementation reports, should be kept onsite for the duration of the project.

6. KURGAN ARCHAEOLOGICAL LANDSCAPE MITIGATION AND MANAGEMENT GUIDELINES

6.1 HERITAGE CONTEXT

In 2014 Margulan Institute of Archaeology (a licensed cultural heritage authority associated with Margulan University) completed a cultural heritage study encompassing the Project Area. A total of three Cultural Heritage assets were identified along the Project's alignment as outlined in **Table 6-1**.

Based on the findings from Margulan Institute of Archaeology's reports, the mounds represent a burial ground that dates to the Early Iron Age and are referred to as 'kurgan' burial grounds/sites. According to online sources, kurgans are mounds of earth and stones raised over a grave or graves⁶. Although the findings suggest that there are no cultural heritage objects along the Project's Right of Way (RoW) and 240m survey corridor, they do kurgan sites have been identified within the Project's Area of Influence (AoI).

During the survey by Margulan University in 2014, the following objects were identified:

Object 1. The remains of a building and two (2) burial mounds (*Kurgan burial ground*) dated to the period of the Early Iron Age. They are located on a natural hill. The mounds are oriented along the line northwest, southeast and constructed of earth and stone.

Object 2. *Kurgan burial ground* consisting of six (6) mounds dated to the Early Iron Age, constructed of earth and stone.

⁶ Source: https://en.wikipedia.org/wiki/Kurgan#cite_note-1

Object 3. *Kurgan burial ground.* It consists of three (3) mounds oriented along the line north-west and south-east constructed of earth and stone.

The following table identifies the GPS locations and the characteristics of the three archaeological sites identified by Margulan Institute for Archaeology in 2014⁷.

TABLE 6-1: LIST OF IDENTIFIED CULTURAL HERITAGE RESOURCES

No Object	Cultural Heritage site	Preliminary dating	GPS data	Characteristic
1	Remains of a built structure and two (2) burial mounds	Early Iron Age	Remains of a later structure: N- 43°34'52.76", E- 76°20'30.43" Mound No 1: N- 43°34'51.36", E- 76°20'31.75" Mound No 2: N- 43°34'51.75", E- 76°20'31.05"	Structure: 7, 4 м (B-3) x 8 м (Ю-С) Kurgan No 1: Diameter 6 m, height 0.1 m Kurgan No 2: Diameter 5.5 m, height 0.1 m
2	Six (6) burial mounds	Early Iron Age	Mound No 1: N - 43°35'22.24", E- 76°25'4.65" Mound No 2: N- 43°35'22.27", E- 76°25'6.62" Mound No 3: N- 43°35'25.19", E- 76°24'59.86" Mound No 4: N- 43°35'23.65", E- 76°25'1.35" Mound No 5: N - 43°35'22.39", E- 76°25'8.25" Kurgan No 6: N - 43°35'23.43", E- 76°25'9.57"	Kurgan No 1: Diameter 10 m, height 0.5 m. Kurgan No 2: Diameter 12 m, height 0.5 m. Kurgan No 3: Diameter 8 m, height 0.4 m. Kurgan No 4: Diameter 8.5 m, height 0.4 m. Mound No 5: Diameter 12.5 m, height 0.5 m. Mound No 6: Diameter 6 m, height 0.2 m.
3	Three (3) burial mounds	Early Iron Age	Mound No 1: N - 43°35'29.47" E- 76°25'39.99" Mound No 2: N - 43°35'30.17" E- 76°25'34.76" Mound No 3: N- 43°35'30.52" E- 76°25'33.30"	Kurgan No 1: Diameter 13 m, height 0.5 m. Kurgan No 2: Diameter 10 m, height 0.3 m. Kurgan No 3: Diameter 10 m, height 0.4 m.

6.2 PURPOSE AND OBJECTIVES

This Kurgan Archaeological Mitigation and Management Measures Guideline has been developed for the Almaty Bypass Railway Project ('the Project') as a guiding document to manage and conserve the recorded Kurgan sites in the vicinity of the Project during construction or operation activities.

This guideline will:

- Provide mitigation and management recommendations to avoid or minimise adverse impacts to recorded Kurgan sites; and

⁷ Margulan Institute of Archaeology. (2014). Conducting an archaeological study of the territory studied for the project "Construction of a bypass railway line bypassing the railway junction of the Almaty station".

- Outline the responsibilities of all contracting personnel.

This document should be incorporated into the Construction Management Plan for the Project.

6.3 HERITAGE MITIGATION AND MANAGEMENT MEASURES

6.3.1.1 STRUCTURE AND RESPONSIBILITY

All contracting personnel associated and operating within the Project are **responsible** for the application of these mitigation and management measures.

- KTZ is responsible for siting and designing a project to avoid impacting recorded kurgan sites.
- Contractor Supervisors are the competent persons acting for the Developer: KTZ. These are the technicians who supervise excavations and other construction works. They must comply with the mitigation and management measures recommended in this report.
- Margulan Institute of Archaeology. The Margulan Institute of Archaeology ensures that cultural heritage resources in Kazakhstan are conserved and protected.

6.3.1.2 MITIGATION AND MANAGEMENT MEASURES

Mitigation Hierarchy

The mitigation hierarchy is a widely used leading practice framework that aims to limit the degree of impact that will result from an action or development. The following three steps should be followed in order and to the greatest extent possible before progressing to the next step:

4. Avoid - An attempt must be made to redesign the proposed development to avoid the recorded kurgan sites.
5. Minimise the impact to the recorded kurgan sites; or
6. Mitigate - If it is not feasible to avoid the site through redesign, it will be necessary to implement mitigation and management measures for the recorded kurgan sites during construction activities.

It is recommended that avoidance is prioritised for highly significant archaeological sites and material, including recorded kurgan sites. Once impacts have been avoided or minimised as much as possible through project redesign, remaining unavoidable impacts should be mitigated through the following measures.

Cultural Heritage Awareness Induction/Training

All personnel involved in the project works should undergo heritage awareness training as part of the site induction to ensure they understand their responsibilities and obligations. This training should include:

- Legal responsibilities;
- Summary of recorded heritage sites (including significant landforms and archaeological kurgans);
- Explanation of the mitigation and management recommendations for the protection of recorded kurgan sites outlined in this document (including location of 'No-Go Zones'); and
- Explanation of the Chance Finds Procedure (CFP) for the Project.

It is recommended that Margulan Institute of Archaeology are engaged to provide input into or deliver this induction.

Chance Finds

Should potential human remains be uncovered during the works, all activities within the immediate vicinity must stop, and the Human Remains Procedure outlined in the CFP for the Project must be followed.

Protection of Kurgan Sites: No-Go Zones

To ensure the protection of the recorded kurgan sites, the following measures should be implemented as soon as practicable and complied with.

- The protection zones surrounding the identified archaeological (kurgan) sites should be treated as No-Go Zones. The location of the protection zones should be clearly marked on all construction plans. Visual markers must be installed to clearly indicate the location of the objects and protection zone to any persons on foot or in a vehicle/machinery.
 - The "Rules for determining the protection zone, the zone for regulation of development and the zone of the protected natural landscape of the monument of history and culture and the regime for their use", in the *Order of the Minister of Culture and Sports of the Republic of Kazakhstan* dated 14 April 2020 No. 86 suggests the markers should be **security signs or an open strip, or fences, or shrub plantations along the border of the site.**
- It is therefore suggested that temporary metal fencing be placed along the edge of the No-Go Zones that either face or intersect the RoW. Other visual markers can be installed along the remainder of the perimeter. Signage should be affixed to the fencing stating that it is a No-Go Zone; the *Order of the Minister of Culture and Sports of the Republic of Kazakhstan* dated 14 April 2020 No. 86 should be referenced, including the specified protection zone of 120m.
- Operation of vehicles / machinery should be avoided within the No-Go Zones wherever possible. Where existing access tracks are present within these zones, signage should be installed along the alignment; vehicles should not be driven outside of these established access tracks. No new access tracks should be created within these zones.
- Plant, equipment, or any materials including fill must not be stored within the No-Go Zones.
- No-Go Zone fencing and signage should be inspected on a regular basis and any damages should be repaired as soon as practicable. At the completion of the works, the No-Go Zone fencing/markers should be removed.

Figure 6-1 presents the location of the No-Go Zones to be established for the protection of the recorded kurgan sites. The **red** dashed line on the inset maps indicates the suggested location of temporary fencing and the **orange** dashed line on the inset maps indicates the suggested location of other visual markers to be installed.

Watching Brief

The additional 'watching brief' step could be included in finalisation of this Guideline; however this would need to be reviewed by Margulan Institute, or another identified and certified CH specialist to receive their endorsement that no further archaeological workers are needed.

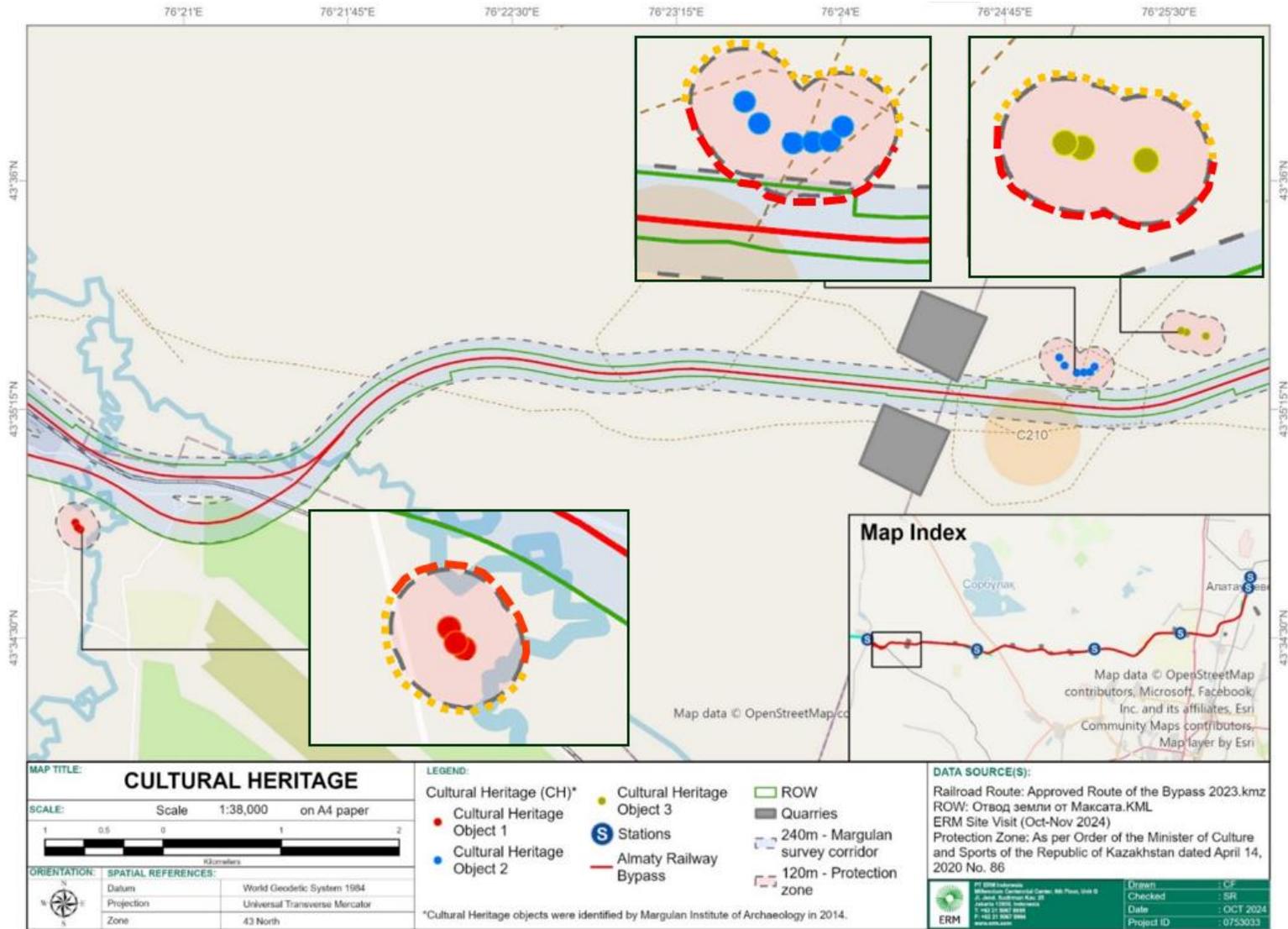


FIGURE 6-1: LOCATION OF KEY CULTURAL HERITAGE RESOURCES AND SUGGESTED NO-GO ZONE MARKERS (DASHED RED AND ORANGE)



APPENDIX A APPENDIX A CULTURAL HERITAGE SCREENING CHECKLIST

PROJECT INFORMATION CULTURAL HERITAGE SCREENING CHECKLIST

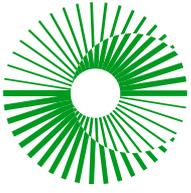
	Project Details
Project Name and Proponent	
Project Description (Type of Infrastructure, Size, Expected Impact Area):	
Project Location (Coordinates, Region, District):	
Date of Assessment	
Assessor's Name, & Organisation, Role and Qualifications	

SECTION 1: REGULATORY COMPLIANCE

1. Is the project located in or near a protected cultural heritage site (UNESCO, national, regional)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
2. Has the project been reviewed by a Kazakhstan cultural heritage authority?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required
3. Does the project require compliance with: <i>On the protection and use of historical and cultural sites - Law of the Republic of Kazakhstan 2019</i> and/or <i>Determining the Protection Zone, Zone for Regulation of Development and Zone of the Protected Natural Landscape - Order of the Minister of Culture and Sports of the Republic of Kazakhstan 2020</i> ?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure

SECTION 2: CULTURAL HERITAGE BASELINE

4. Are there any indications of potential subsurface cultural remains based on satellite imagery, GIS data, or prior research?	<input type="checkbox"/> Yes (Specify: _____) <input type="checkbox"/> No
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	Project Details
	<input type="checkbox"/> Unsure
5. Are there any known or potential historical, archaeological, or cultural heritage sites within or in relevant proximity to the project area?	<input type="checkbox"/> Yes (Specify: _____) <input type="checkbox"/> No <input type="checkbox"/> Unsure
6. Are there any local traditions or land-use patterns, sacred sites, oral histories, or community knowledge indicating cultural significance in the area?	<input type="checkbox"/> Yes (Specify: _____) <input type="checkbox"/> No <input type="checkbox"/> Unsure
7. Are there any indigenous groups or local communities with cultural, spiritual, or economic ties to the land?	<input type="checkbox"/> Yes (Specify Group: _____) <input type="checkbox"/> No <input type="checkbox"/> Unsure
8. Have consultations been conducted with local communities regarding cultural heritage concerns?	<input type="checkbox"/> Yes (Attach Summary) <input type="checkbox"/> No <input type="checkbox"/> Planned

SECTION 3: POTENTIAL IMPACTS AND RISKS

9. Does the project involve excavation, earthworks, or land clearance in previously undisturbed areas?	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Is there a potential for disturbing unknown archaeological sites in project area?	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/> Uncertain
11. Could the project impact culturally significant landscapes, burial grounds, or sacred natural features?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Uncertain
12. Will the project disrupt traditional land use, access to cultural sites, or community practices?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unsure
13. Will construction introduce visual, environmental or noise impacts (e.g., water table changes, deforestation) that could impact cultural sites, or affect cultural/historical landscapes?	<input type="checkbox"/> Yes <input type="checkbox"/> No



Project Details

SECTION 4: MITIGATION AND MANAGEMENT MEASURES

14. Has an Archaeological Chance Find Procedure been developed for the broader Project that is applicable to the additional area/greenfield site?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Planned
15. Is there a plan for cultural heritage monitoring during project implementation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. Will mitigation measures be implemented (e.g., avoidance, documentation, buffer zones, or site preservation)?	<input type="checkbox"/> Yes (Describe: _____) <input type="checkbox"/> No <input type="checkbox"/> Not Applicable
17. Have agreements been made with local communities regarding cultural heritage preservation and sustainable land use?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Planned

SECTION 5: CONCLUSION AND RECOMMENDATIONS

Overall Cultural Heritage Risk Level:	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input type="checkbox"/> Unknown (Further Studies Required)
Key Recommendations for Project Development:	<input type="checkbox"/> Conduct full Cultural Heritage Impact Assessment <input type="checkbox"/> Engage with local stakeholders and experts (Cultural Heritage Authority) for heritage verification <input type="checkbox"/> Modify project design to avoid sensitive heritage areas <input type="checkbox"/> Implement monitoring and protection measures <input type="checkbox"/> No further action needed
Approval Status:	<input type="checkbox"/> Approved <input type="checkbox"/> Approved with Conditions <input type="checkbox"/> Not Approved (Further Review Needed)

Assessed by: _____





ERM

Project Details

Assessor's Signature: _____

Date: _____



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