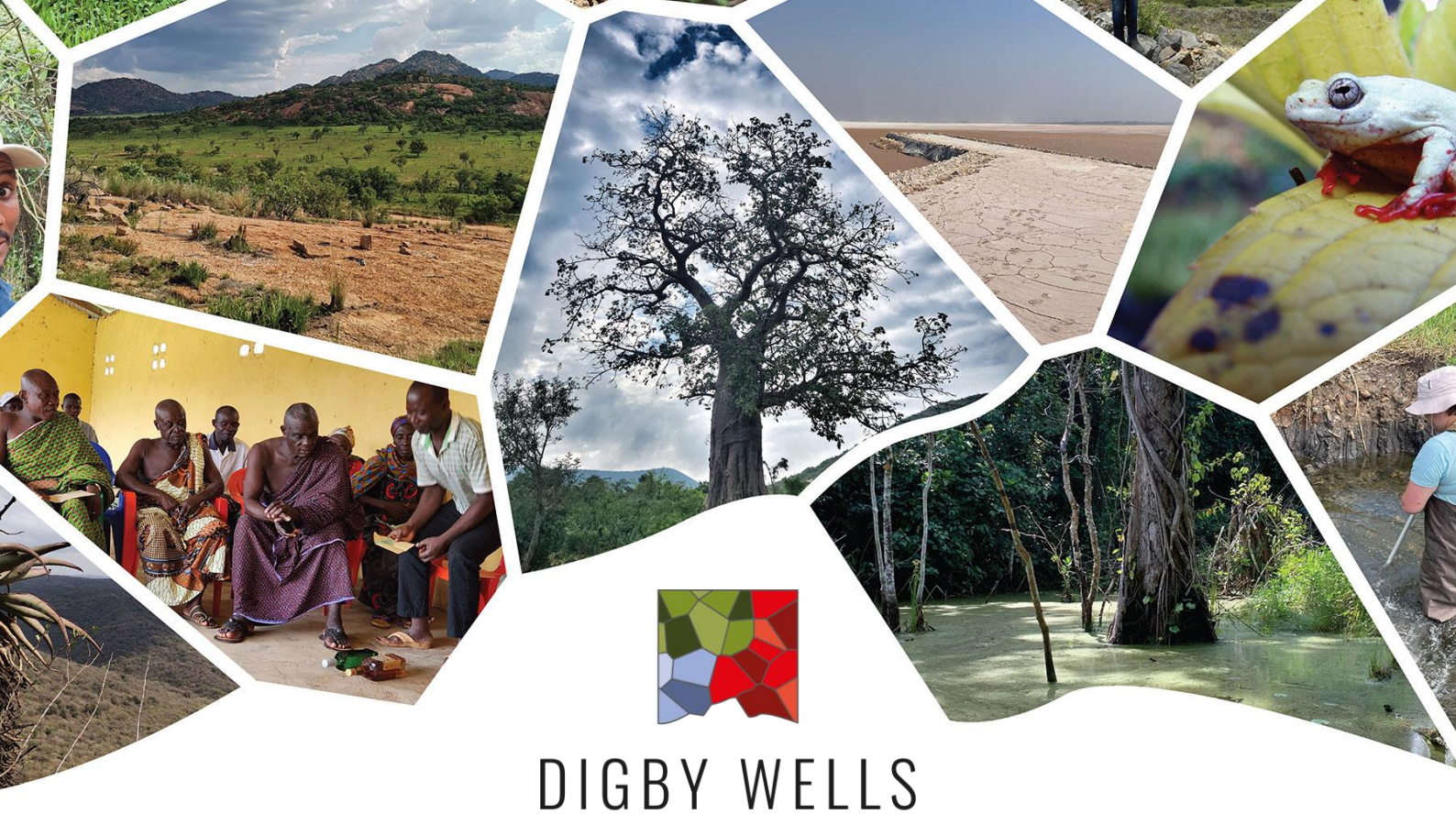

DIGBY WELLS
ENVIRONMENTAL

Reko Diq Mining Project, Pakistan

Executive Summary

Prepared for:
Reko Diq Mining Company (Private) Limited

Project Number:
BAR7212

October 2024

Hagler Bailly Pakistan

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Cautionary Statement on Forward-Looking Information

The Reko Diq Project information in this document ("Project Information") has been provided by Reko Diq Mining Company (Private) Limited ("RDMC") and its affiliates (the "Group") to Digby Wells Environmental and Hagler Bailly Pakistan in connection with their preparation of this Environmental and Social Impact Assessment ("ESIA"). The Project Information is current as of the date of this ESIA and is subject to change during the development of the Reko Diq Project.

In particular, the ESIA contains various plans, estimates, projections, forecasts and other forward-looking information (within the meaning of that phrase under applicable securities laws) ("Projections") including, without limitation, with respect to: anticipated timelines and plans for project development, operation and closure; the ability and timeline to secure all relevant rights, licenses, permits and authorizations; RDMC's strategy, plans, targets and goals in respect of environmental and social issues and sustainability matters; stakeholder engagement; the power strategy for the Reko Diq Project including renewable energy sources; forward-looking production guidance, including forecast production, ore, grade, throughput, mine life, leaching results and potential recoveries from Reko Diq; sufficiency of infrastructure, systems and consultants and personnel; operating or technical challenges in connection with mining or development activities, including geotechnical challenges, tailings dam and storage facilities, and the maintenance or provision of required infrastructure and information technology systems; exploration potential; and expectations regarding future price assumptions, financial performance and other outlook or guidance. All statements, other than statements of historical fact, are Projections and the Projections are not representations as to future matters. When used in this document, the words "may", "would", "could", "will", "intend", "plan", "anticipate", "target", "believe", "estimate", "expect", "potentially" and similar expressions may be used to identify Projections. These Projections are necessarily based on various assumptions, opinions and estimates that in some cases involve significant elements of subjective judgment, and are subject to known and unknown risks, many of which are outside the control of the Group and which may ultimately prove to be materially incorrect. In addition, forward-looking statements are inherently subject to significant business, economic, political, security and competitive uncertainties and contingencies, which may include the risk factors identified in Barrick Gold Corporation's most recently filed Annual Information Form / Form 40-F on file with the Canadian provincial securities regulators on SEDAR+ at www.sedarplus.ca and the U.S. Securities and Exchange Commission on EDGAR at www.sec.gov. Should one or more of these risks or uncertainties materialize, or should the assumptions underlying such Projections prove incorrect, it may have a significant, and potentially negative, impact on the Projections and could cause actual results to differ materially.

The Group does not intend and does not assume any obligation to update the Projections or the ESIA whether as a result of new information, plans, events, or otherwise, except as may be required by law.

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AIS	Alien Invasive Species
API	American Petroleum Institute
ARD/ML	Acid Rock Drainage/ Metal Leaching
BAP/BMP	Biodiversity Action Plan/ Biodiversity Management Plan
BEPA	Balochistan Environmental Protection Agency
BEQS	Balochistan Environmental Quality Standards
BESS	Battery Energy Storage System
BHU	Basic Health Unit
BID	Background Information Document
CDC	Community Development Committees
CIA	Cumulative Impact Assessment
CITES	Convention on the International Trade of Endangered Species
CP	Mine Closure and Rehabilitation Plan
CSR	Corporate Social Responsibility
DHQ	District Headquarter Hospitals
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Monitoring and Management Plan
ESMS	Environmental and Social Management System
ESRP	Environmental and Social Review Procedures
FGDs	Focus Group Discussions
GHG	Greenhouse Gas
GISTM	Global Industry Standard on Tailings Management
GRM	Grievance Redress Mechanism
HDPE	High-Density Polyethylene
HFO	Heavy Fuel Oil
HTV	Heavy Transport Vehicle
IBA	Important Bird Area

IBAT	Integrated Biodiversity Assessment Tool
ICMM	International Council of Mining and Metals
IEE	Initial Environmental Examination
IFC	International Finance Corporation
IFC PS	International Finance Corporation Performance Standard
IPs	Indigenous Peoples
IUCN	International Union for Conservation of Nature
LLDPE	Linear Low-Density Polyethylene
LNG	Liquefied Natural Gas
LoM	Life of Mine
LPG	Liquified Petroleum Gas
MBI	Marine Benthic Invertebrates
NEQS	National Environmental Quality Standards
NGO	Non-Governmental Organisation
NNP	Net Neutralisation Potential
NO_2	Nitrogen Dioxide
NTDC	National Transmission and Despatch Company
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational Health and Safety
PIBT	Pakistan International Bulk Terminal
PKR	Pakistani Rupee
PM_{10}	particles with an aerodynamic diameter smaller than 10 µm
$PM_{2.5}$	particles with an aerodynamic diameter smaller than 2,5 µm
PQA	Port Qasim Authority
RBC	Rotational Biological Contactor
RCD	Regional Corporation for Development
RDMC	Reko Diq Mining Company (Private) Limited
RDMS	Reko Diq Mine Site
RO	Reverse Osmosis
SEP	Stakeholder Engagement Plan
SEPA	Sindh Environmental Protection Agency
SEQS	Sindh Environmental Quality Standards

SO_2	Sulphur Dioxide
SOP	Standard Operation Procedure
SRA	Surface Rights Area
SRK	Steffen, Robertson and Kirsten Group
TDS	Total Dissolved Solids
THQ	Tehsil Headquarter Hospital
TSF	Tailings Storage Facility
TSS	Total Suspended Solids
USGS	United States Geological Survey
WGC	World Gold Council
WMP	Waste Management Plan
WRD	Waste Rock Dump
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

1. Introduction

The Reko Diq Mining Project (the Project) located in Pakistan's Balochistan desert is being developed by Barrick Gold Corporation (Barrick), as operator of the Reko Diq Mining Company (Private) Limited (RDMC or the Project Company) joint venture.

On December 15, 2022, Barrick completed the reconstitution of the Project. The completion of this transaction involved, among other things, the execution of all of the definitive agreements including a Mineral Agreement stabilizing the fiscal regime applicable to the project, as well as the grant of mining leases, an exploration license, and surface rights. This completed the process that began earlier in 2022 following the conclusion of a framework agreement with, among others, the Governments of Pakistan and Balochistan province and Barrick, which provided a path for the development of the Project under a reconstituted structure. The Project, which was suspended in 2011 due to a dispute over the legality of its licensing process, hosts one of the world's largest undeveloped open pit copper-gold porphyry deposits.

The reconstituted Project is indirectly owned 50% by Barrick and 50% by Pakistani stakeholders. The 50% Pakistani stakeholder interests comprise a 10% free-carried, non-contributing interest held directly by the Government of Balochistan (GoB), an additional 15% held indirectly by the GoB through Balochistan Mineral Resources Limited (a special purpose company wholly-owned by the GoB), and 25% indirectly owned by three Government of Pakistan (GoP) state-owned enterprises (SOEs): Oil & Gas Development Company Limited, Government Holdings (Private) Ltd. and Pakistan Petroleum Ltd.. The SOEs' ownership of the Project is held through Pakistan Minerals (Private) Ltd., which is owned by the SOEs in equal thirds.

The Project is located near Nok Kundi in the underdeveloped Chagai district of the Balochistan province of Pakistan. The Project area is located between Iran and Afghanistan[1], and is one of the most arid parts of Pakistan, with sparse vegetation, an average rainfall of less than 35 mm per annum, and extreme temperatures which range from -9°C to 45°C. The desert terrain includes extensive sand dunes, rocky outcrops, and no perennial surface water sources, creating a challenging environment for both human and plant and animal habitation (Figure 1-1).

[1] The Iranian border is 40km from the project site, while the Afghani border is 35 kilometres away.

Mountains/Hills

Sandy Plains/Sand Dunes

Figure 1-1: Landscape of the Project Area

Nearby settlements and communities are mostly rural and isolated, with houses primarily made of mud and wood (Kutcha). The Project has no direct doorstep communities; the nearest community to the mine site is Humai village, some 20 km away from the Project area. Communities are generally small and limited to populations in the 100s. Socially the area is characterized by limited infrastructure and fundamental public services. Settlements are connected by a network of poor and mostly unsealed roads, and most lack access to basic health care services and education facilities. The communities are challenged with low literacy rates, high unemployment rates and low income. Unemployment in the area stands at 24% for men and 42% for women, while the average monthly household income is PKR 30,219 (~$ 108) and many households exist below the national poverty line of PKR 3,030 (~$ 11) per person per month,. further reflecting the economic challenges of the local region. [1]

The development of the Reko Diq Project, an open pit copper-gold mine with an initial anticipated life of 38 years, provides an opportunity to deliver long-term strategic sustainable development and socio-economic upliftment for the region and its people, as well as significant financial benefits for wider Pakistan.

[1] All references to $ refer to U.S. dollars.

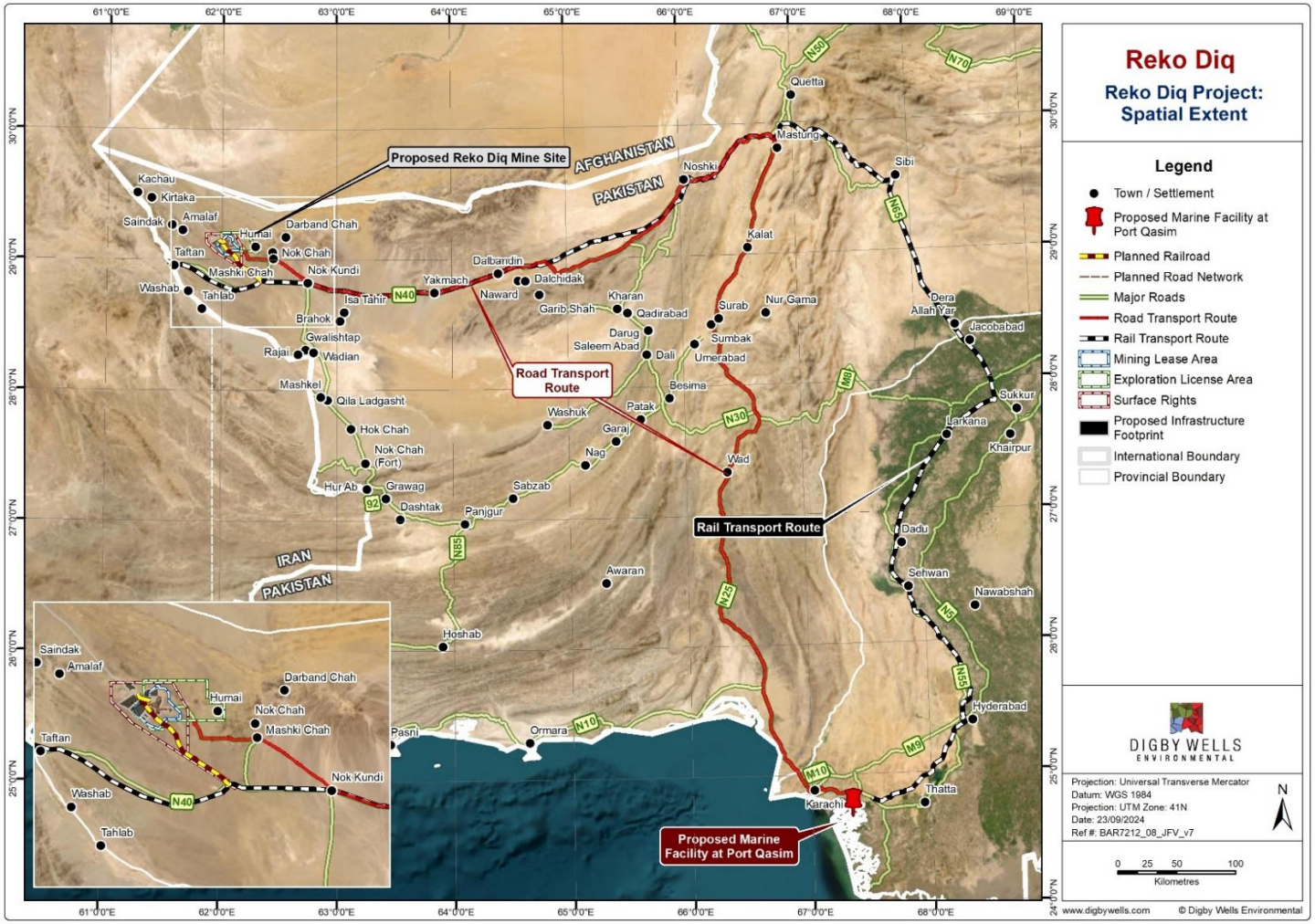

Figure 1-2: Regional extent of Project

1.1. Project Need and Motivation

As a major mining development, the Project has the potential to deliver long term benefits to Balochistan and Pakistan. Some of the potential benefits of the Project are:

- **Employment opportunities:** Barrick's Sustainability Strategy and Social Performance Policy include a local-first hiring approach. In the wider Barrick, as of year-end 2023, 97% of Barrick's total workforce are nationals of the country they work in, and 77% of site senior leadership positions are held by in-country nationals. During the construction phase it is estimated that the Reko Diq Project will create 10,000 jobs, while 6,000 permanent jobs are expected to be created during the operational phase. Barrick has already started to provide training opportunities to increase the knowledge and skills of the local workforce to enable them to better access direct and indirect job opportunities at the Project and enhancing the regional and national human capital capacity.
- **Direct and indirect development of business opportunities:** Barrick is committed to sourcing local goods and services and has a long track record of working with local suppliers over time to train and upskill them to ensure they can meet the company's quality and ethical standards. Indirect economic development is also anticipated as household income and spending increases. In 2023 Barrick's total spend with suppliers in host countries was $6.9 billion.
- **Payments to government through taxes and royalties:** Barrick has a publicly available tax policy and the Company's approach to tax management and planning is to pay the right amount of tax at the right time in the right place and to transparently disclose the payments it makes. For example, in 2023 the Company's total tax and royalty contributions were $2.6 billion and a further $218 million was paid in dividends to the state (where applicable). The key fiscal terms for Reko Diq under the Project's Mineral Agreement are a 5% net smelter return royalty payable to the Provincial Government of Balochistan, a 1% net smelter return royalty payable to the Government of Pakistan (subject to a 15-year exemption following commercial production), and a 0.5% net smelter return royalty export processing zone surcharge.
- **Infrastructure Improvements:** The Project will also result in improved and additional infrastructure including health, education and potable water facilities for the local communities which will further improve the living standards of the region. A project of this scale will also measurably reduce the country's trade deficit through increased exports and reduced import costs through currency appreciation (SRK and HBP, 2010).
- **Community Training and upliftment:** In line with Barrick's commitments, set out in its Sustainable Development and Social Performance Policies, the Project will also provide important training and education opportunities for local communities, which will help to improve local literacy rates and further drive socio-economic upliftment.

Beyond the socio-economic benefits of the Project, copper plays a vital global role as an important metal for the transition to a low carbon economy. According to some estimates, by 2035, copper demand is expected to double from the current 25 million tonnes/year to 50 million tonnes/year and this demand cannot be offset with the substitution of other metals for copper, therefore new projects, requiring an estimated USD 25 billion investment, will be required. Given that many of these mining projects do not yet exist and it can take between 10-15 years, or longer, to start a new mine, the anticipated supply gap in demand is expected to be around 10 million metric tonnes per year by 2030 (Erik Eberhardt, 2024).

1.2. RDMC's Policies and Approach

The Project will be developed and operated by Barrick on behalf of the RDMC joint venture. Barrick is committed to responsible mining, and is a member of both the International Council on Mining and Metals (ICMM) and the World Gold Council (WGC). The Company's approach emphasises sustainable development, aiming to manage all operations in a manner that considers and mitigates environmental, cultural, and social risks and impacts. The goal is to provide long-term value to all stakeholders, including local communities. The Company has a full suite of sustainability focused policies, which RDMC has adopted and is committed to implementing, summarised below.

Sustainable Development Policy: Which sets out commitments to: Consider the social and environmental impacts of operations in decision-making; Include environmental and social impact assessment studies and management plans for all new projects and significant modifications to existing operations; Support socio-economic development as an integral part of its contribution to local communities and host countries; Conduct business with integrity through absolute opposition to corruption; Require suppliers to conduct their businesses ethically and responsibly as a condition of doing business; and Use energy, water and other natural resources as efficiently as possible.

Environmental Policy: Which sets out commitments to: Comply with in-country environmental legislation and/or international best practice where the former is lacking; Efficient use of natural resources; Sustainable management of water resources for the benefit of all local users; Regularly assess climate-related risks; Manage Greenhouse Gas (GHG) emissions and invest in clean energy sources; and High-quality waste management.

Biodiversity Policy: Which sets out commitments to: Establish a biodiversity baseline for all green field projects and to always consider ecological impacts, and opportunities for ecological enhancement; Not explore, mine, drill or otherwise operate in declared natural World Heritage Sites; Apply a mitigation hierarchy to manage and offset its biodiversity impacts; Contribute to national and regional biodiversity planning; Undertake regular biodiversity assessments, develop Biodiversity Action Plans; and Engage with communities on biodiversity value.

Human Rights Policy: Which sets out commitments to: respect human rights; always strive to act in accordance with the UN Guiding Principles on Business and Human Rights, the Organisation for Economic Co-operation and Development (OECD Guidelines) for Multinational Enterprises, and the Voluntary Principles on Security and Human Rights; Not

tolerate violations of human rights committed by its employees, affiliates, or any third parties acting on its behalf or related to any aspect of one of its operations; and Not tolerate the use of child labour, prison labour, or any form of forced labour, slavery or servitude, or discrimination of any form.

Social Performance Policy: Which sets out commitments to: Work with government and other partners to mitigate the impacts of operations and ensure that the benefits and costs associated with mining activities are equitably distributed; Deliver long-term sustainable benefits; Engage with host communities through means that are culturally appropriate and transparent; Maximise social and economic benefits and opportunities by working proactively with host governments, communities, contractors and other stakeholders; Partner with host communities, governments and other stakeholders to address long-term development needs and leave a positive legacy; and Maintain an effective grievance mechanism at each site to address community grievances in a fair, timely and consistent manner.

Occupational Health and Safety Policy: Which sets out commitments to: Establish and maintain Occupational Health and Safety (OHS) management systems that facilitate a structured approach to mitigate safety and health risks; and Promote a safety culture that encourages people to proactively manage health and safety risks through education, instruction, information and supervision.

Tailings Management Policy and Standard: Which includes commitments to: Plan, design, construct, operate and close tailings facilities, using risk-informed decision making and adaptive management, to minimize risk and reduce long-term liabilities; and Conformance to the Global Industry Standard for Tailings Management (GISTM), regular audits, and thorough planning for emergency preparedness and response. As an ICMM member Barrick was actively involved in the development of the GISTM.

1.3. Approach to Development

In line with Barrick's policies and sustainability approach, RDMC is committed to developing the Reko Diq Mining Project in a manner that benefits the local region, and Pakistan as a whole. Key elements of Barrick's approach to the development of the Project are:

- Conducting a comprehensive Environmental and Social Impact Assessment (ESIA) process to in country and international best practice standards;
- Engaging with local communities and stakeholders through regular discussions and structured engagement campaigns;
- Implementing a Stakeholder Engagement Plan (SEP) including a structured Grievance Redress Mechanism (GRM) to ensure effective and inclusive engagement processes;
- Developing an Environmental and Social Management and Monitoring Plan (ESMMP) to address, minimise and monitor potential adverse impacts and enhance positive impacts; and

- Compliance with national and provincial (Balochistan, Sindh and Pakistan legislation) and international standards, including the International Finance Corporation Performance Standards (IFC PS), Equator Principles, and the World Bank Group Environmental, Health, and Safety Guidelines.

2. Project Overview

The Reko Diq Project represents one of the largest undeveloped copper-gold porphyry projects in the world (Barrick, 2024). Mineral exploration and mining activities are expected to play an important role in Pakistan's national, regional, and local economic development and the Project is a keystone development in this regard.

The Project includes the development of a truck-and-shovel open pit copper-gold mine, including processing facilities, mine water supply with related infrastructure such as pumping and piping, and other ancillary facilities in support of the mine's operations.

It will produce a high-quality copper-gold concentrate for the export market and will utilise existing facilities and transport routes including road and rail to get supplies to the operation, and product to export. Mine supplies will be transported utilising a combination of road and rail, while copper-gold concentrate will be transported by approximately 1,350 kilometres of existing rail to Port Qasim in Malir district, Karachi division, Sindh province.

The expected initial Project life is 38 years in terms of defined resource and has significant exploration potential upside. The mine will be developed in 2 phases: Phase 1 processing 45 million metric tonnes and Phase 2 adding a further 45 million metric tonnes. When at full capacity the mine will process a total of 90 million metric tonnes per annum, producing 800,000 metric tonnes of copper-gold concentrate at a grade of between 26% and 30% contained copper.

The initial construction phase is anticipated to take approximately 4 years. The Phase 1 operations are projected to commence at the end of 2028. Phase 2 construction will take two years and commence immediately after the construction of phase 1. The initial production of concentrate will begin in 2028.

Table 2-1 presents the anticipated Project schedule.

Table 2-1: Project Schedule

Phase	Aspect	Scheduled
Construction Phase	Early Works	Q3 2024 – Q2 2025
	Phase 1 construction	2025 – 2028
	Phase 2 construction	2028 – 2030
Operational Phase	Phase 1 commissioning	2028
	Phase 2 commissioning	2030
Decommissioning	Rehabilitation and post-closure management	After mine operations have ceased.

Q refers to one-fourth of a year (Quarter) i.e., Q2 is second quarter of the year 2025.

2.1. ESIA Methodology

An ESIA for the Project was conducted between May 2022 and September 2024. The ESIA was undertaken by independent expert consultants Digby Wells Environmental and Hagler Bailly. In line with national and internationally recognised best practices (including IFC PS), the ESIA followed a structured process to evaluate potential impacts on the environment, local communities, and other stakeholders. This process included several key steps which are highlighted below and further detailed in Chapter 1 of the ESIA report.

- **Screening Process:** Identifies the level of environmental assessment required for the project.
- **Scoping Process:** Determines the scope of work for the ESIA and provides a preliminary report of potential impacts and mitigation measures.
- **Baseline Assessment:** Establishes the pre-development environmental and socio-economic characteristics of the project area through desktop and field-based studies.
- **Impact Assessment:** Uses an input—pathway- output model to assess potential changes to physical, ecological, and socio-economic environments during all project phases.
- **Management and Monitoring:** Develops an ESMMP to mitigate negative impacts and enhance positive impacts.
- **Stakeholder Engagement:** Involves regular discussions with local communities and other stakeholders to ensure their concerns and suggestions are addressed.
- **Reporting:** Compiles a single report incorporating the ESIA and ESMMP for submission to the Balochistan and Sindh Environmental Protection Agencies (EPAs).

2.2. Project Categorisation

The Project is categorised according to the applicable legislation and international standards. The categorisation confirmed that an ESIA is required to be completed.

2.2.1. National Standards

At the time of writing, the Balochistan Environmental Protection Agency (BEPA) Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) Regulations, 2020 were in draft phase.

Given the Balochistan Regulations remain in draft and in accordance with the Balochistan Environment Protection Act, 2012, the Project's categorisation for environmental assessment has been pursuant to the Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations, 2000. The Project encompasses mining, mineral processing along with the transportation of ore concentrates from Balochistan. These activities fall under the category of projects requiring an EIA as stipulated by Regulation 4 and Schedule II in the Pakistan Environmental Protection Agency (Review of IEE and EIA) Regulations, 2000.

2.2.2. International Standards

The nature and spatial and temporal scale of the Reko Diq Project means the Project is classified as Category A under the Equator Principles.[2] That means the Project is considered to have potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible, or unprecedented. This classification aligns with the categorisation given in the IFC's Environmental and Social Review Procedures (ESRP).

2.3. Legal Framework

The legal framework for the Reko Diq Project includes the Mineral Agreement and other definitive agreements providing for the reconstitution of the Project, as well as a comprehensive range of national and provincial legislation, regulations and standards as well as international standards and guidelines. The reconstituted Project will adhere to legislative requirements and align with relevant guidelines and standards, to support the development of a compliant and sustainable Project.

2.3.1. National and Provincial Legislation

The Constitution of Pakistan grants exclusive legislative powers to provincial assemblies on environmental matters. The Project spans both the Balochistan and Sindh provinces. Each province has its own specific laws, regulations and standards. The Reko Diq Mine Site and a portion of the Rail Transport Route fall under Balochistan's jurisdiction, while the Rail Transport Route from Jacobabad to Port Qasim and the port facility at Port Qasim are under Sindh's jurisdiction.

Applicable legislation includes the Balochistan Environmental Protection Act, 2012, and the Sindh Environmental Protection Act, 2014. These Acts align with the Pakistan Environmental Protection Act, 1997 and the National Environmental Quality Standards (NEQS) established under this act. They also cover a wide range of environmental issues, including, air and water quality, hazardous waste management, and noise pollution and provide specific guidelines for environmental assessments and public participation.

The Balochistan Environmental Quality Standards (BEQS) are currently in draft phase and therefore, the NEQS remain applicable. These standards cover industrial gaseous emissions, ambient air quality, noise, and drinking water. However, compliance with BEQS is also considered to ensure the Project remains compliant in the future.

The legal framework review for the Project covered a comprehensive array of other national and provincial environmental laws and regulations applicable to the Project and international

[2] Equator Principle 1: Review and Categorisation, defines three project categories, which are based on the level of potential impact: Category A - Projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible, or unprecedented; Category B – Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures; Category C – Projects with minimal or no adverse environmental and social risks and/or impacts.

treaties ratified by Pakistan and which are relevant to the Project. These are set out in full detail in Chapter 2 of the ESIA report.

2.3.1.1. Process for approval

The environmental approval process for the Project involves submitting an ESIA to the respective provincial EPAs for review and approval. The BEPA and the Sindh Environmental Protection Agency (SEPA) are the primary regulatory bodies responsible for implementing the mentioned laws and ensuring compliance. This ESIA will be submitted to the two EPAs for environmental approval.

The Project will require various permits, licenses, and approvals throughout its lifecycle. These include environmental approvals for construction, operation and decommissioning, permits for hazardous and non-hazardous waste disposal, certificates of infrastructure stability, licenses for explosives and hazardous substances, mining leases, and permits for groundwater extraction. Compliance with these requirements ensures the Project operates within legal and regulatory frameworks.

2.3.2. International Standards and Guidelines

Beyond national and provincial regulations, the Project will comply with:

- *The IFC Performance Standards* provide a framework for managing environmental and social risks, promoting resource efficiency, and ensuring community health and safety.
- *The Equator Principles*, adopted by financial institutions, require projects to undergo rigorous environmental and social assessments and adhere to best practices in risk management.
- *The GISTM* emphasises the safe management of tailings facilities to prevent environmental and social harm.
- Corporate policies established by Barrick to maintain International Best Practice.

The Project also considered the environmental and social design criteria which guide the Project's development, outlining key risks, design considerations, and relevant guidelines. These criteria prioritise; Zero discharge of contaminated water; Diversion of uncontaminated surface water; Safeguarding community drinking water resources; and Minimising land disturbance. The Project will also ensure secure containment of hazardous materials, minimise emissions, protect natural habitats, and implement safety plans for community and worker safety.

2.4. Proposed Reko Diq Mine Site

The below sections describe the mine infrastructure and activities, including the major components such as the open pit, Waste Rock Dumps (WRDs), processing plant, Tailings Storage Facility (TSF) and other supporting infrastructure.

2.4.1. Early Works ESIA

An Early Works ESIA was approved in May 2024 for the construction and implementation of an accommodation camp, 250 mm diameter water supply pipeline, Reverse Osmosis (RO) Water Treatment Plant (WTP) and a Waste Water Treatment Plant (WWTP), 15 MW diesel generators for power supply, new access roads and existing access road upgrade as well as four quarries (three andesite and one limestone quarry) and one sand borrow area which will be established within the Mining and Surface Rights lease area. The Early Works related activities are expected to take approximately nine months to implement.

2.4.2. Core Infrastructure

The open pits and processing plant are the core infrastructure of the mine development.

2.4.2.1. Open Pits

The mine will consist of two main pits, Western Porphyry and Tanjeel (Figure 2-1).

Western Porphyry will extend approximately 3.5 km by 5 km when complete with a final depth of approximately 850 m. A 40 m wide ramp will provide access into the pit and external haul roads will be used to transport ore to the plant and waste material to the WRDs.

Tanjeel Pit is located to the east of the Western Porphyry pit and will be brought into production after the first 10 years of mining. Access to the pit will be through external haul roads.

Based on the current mine plan, which is subject to change as the feasibility study is finalised, mining is anticipated to begin in 2027 at the Western Porphyries pit, with the first concentrate production targeted for 2028.

2.4.2.2. Processing Plant

Ore from the pits will be hauled to the ROM pad, where it will be directly tipped into primary crushers and begin passing through the processing circuit illustrated in Figure 2-2. Further details of the process can be found in section 3.2.1.2 of the ESIA.

The concentrate will be stored on site until ready for loading onto rail cars to be transported to the port, and from there shipped to smelters for further refining.

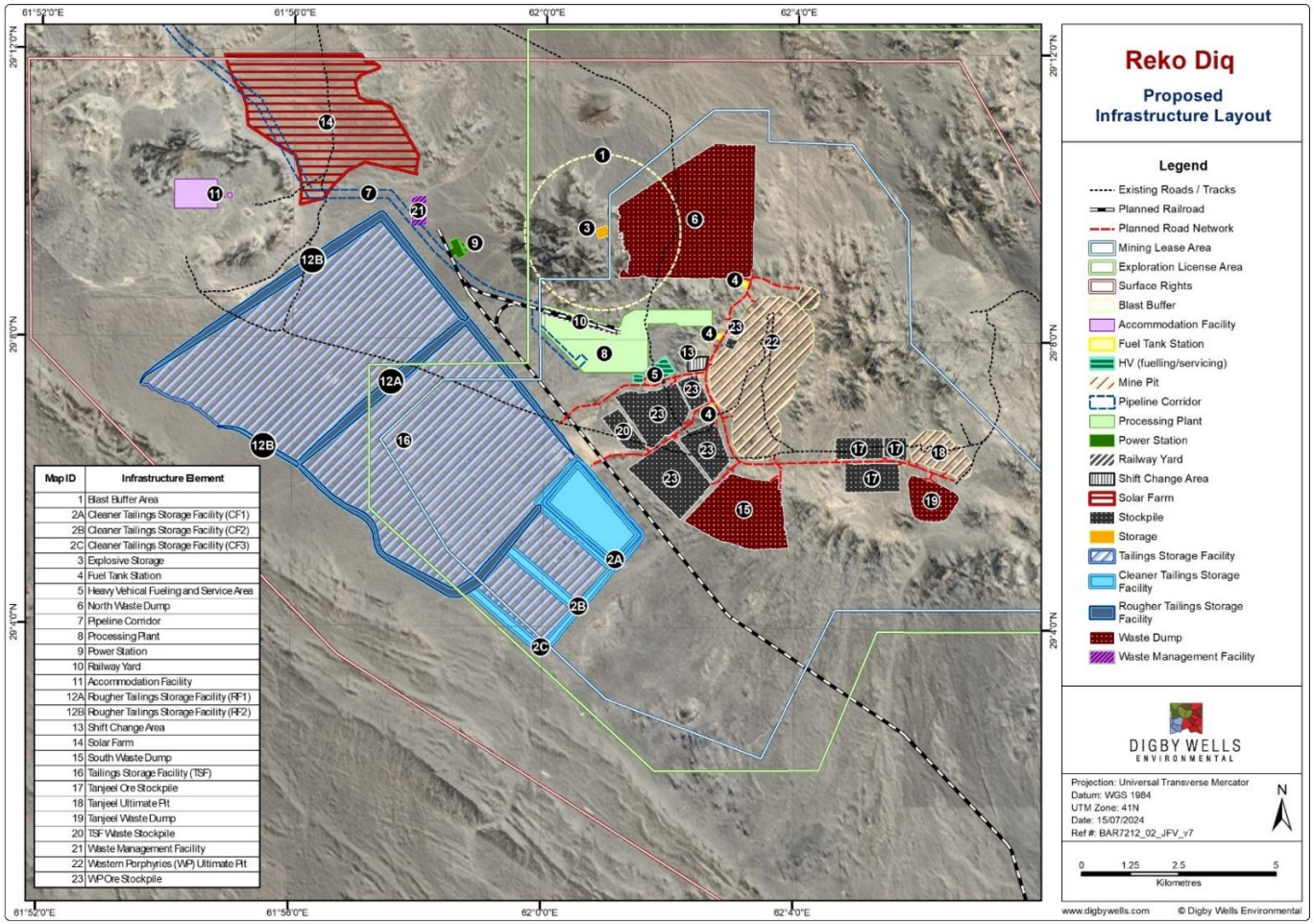

Figure 2-1: Proposed Reko Diq Mine Site Layout

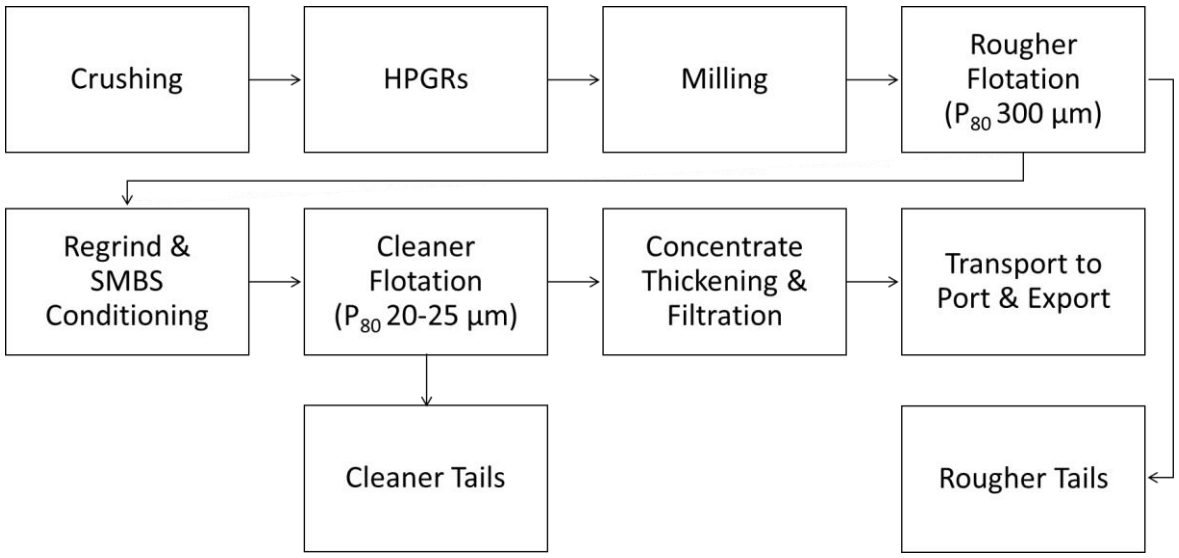

Figure 2-2: Ore Processing Flow Diagram

2.4.3. Supporting Infrastructure

The below table summarises the requirements relating to the Project's supporting infrastructure (Table 2-2).

Table 2-2: Summary of Project's Supporting Infrastructure

Infrastructure	Description
Power Requirements	• Phase 1 (initial 5 years): 183 MW • Phase 2 (remainder of LoM): 348 MW
Power Sources	• Early Works and Construction Phase: Diesel generators • Year 1 – 15: Combination of Heavy Fuel Oil (HFO) and solar power generation • From approximately Year 15 onwards: Connection to the National grid through expansion of the currently limited transmission infrastructure in Balochistan
Power Supply and Distribution	• Supply through 220 kV, 33 kV and 11 kV • Overhead transmission lines will supply power to the borefield via a single circuit
Diesel Requirements	• Construction Phase: 26,000 KL per annum • Phase 1: 96,000 KL per annum • Phase 2: 260,000 KL per annum by 2049
HFO Requirements	• Phase 1: 216,000KL per annum • Phase 2: 425,000 KL per annum (at peak) • (note that HFO will decrease following introduction to the national grid in Year 15)

Infrastructure	Description
Diesel and HFO Transportation and Storage	• Transported via rail to site from Port Qasim • Stored in atmospheric tanks (designed in accordance with American Petroleum Institute (API) 650 Standard) • Storage tanks will be housed in bunded containment areas, sized to capture and contain rainwater and unforeseen spillages
Security Requirements	• Mine site perimeter fence, with patrolling routes and an anti-vehicle berm • Access control through access gates • Detection and surveillance systems (intruder detection and alarms) • Static guards and mobile patrols (with associated infrastructure) • Security control room
Fire Protection	• Alarms, sprinklers, fire hoses and suppression systems in required areas • Fire hydrants outside buildings • Fire water systems at the processing plant, mine site and accommodation facility • Conveyor belts will have linear heat cable detectors
Emergency Response	• An on-site emergency team will be available on standby to deal with any emergency situation • A dedicated Emergency Response facility will have a fire truck and ambulances, and sick bay (first aid)

2.4.4. Water Management

The table below summarises the Project's requirements in terms of raw water volumes, water and sewage treatment requirements (Table 2-3).

Table 2-3: Summary of Water Supply and Treatment Requirements

Aspect	Description or Requirements
Water Source	Northern Groundwater System, a sedimentary groundwater system located approximately 70 km to the northwest of the mining area. Sufficient for the Life of Mine (LoM) however alternative sources continue to be investigated should an alternative be required in the future. There are no nearby communities that use or will be impacted by the abstraction of water from this aquifer system.
Abstraction	Northern Borefield: A number of boreholes will be developed to optimise abstraction. Locations have been selected based on hydrogeological modelling results.

Aspect	Description or Requirements
	Construction water supply: construction of a 250 mm diameter buried pipeline from the Northern Borefield to the mine site during the Early Works (see Section 3.1 of the ESIA report). Operational water supply: A second 900 mm diameter buried, cement lined steel pipeline will be constructed in parallel with first, smaller pipeline at a distance of approximately 30 m apart. The total servitude for all future pipelines, service road and power supply line will be a total width of 60 m.
Raw Water Requirements	
Construction Phase	1.6 GL/a
Phase 1 Production	24 GL/a
Phase 2 Production	48 GL/a
Decommissioning Phase	1.6 GL/a
Water Treatment (potable)	
Technology	Containerised solution with two trains, utilising filtration, reverse osmosis and dosing with chlorine (for bacterial control) and soda ash (for pH adjustment).
Capacity	145 m^3/hr
Sewage Treatment Plants	
Technology	Rotational Biological Contactor (RBC) technology for the Sewage Treatment Plants at the accommodation facility and the processing plant. Septic tanks and infiltration systems for small sewage amounts at e.g. guard houses, airstrip and explosive storage area.
Effluent Treatment	RBC plants: Treated with ultraviolet light to decrease bacterial concentration and then recycled back into the processing plant circuit.
Sludge Disposal	Deposited into the landfill. Construction phase: 2.9 m^3 Operation phase: 1.5 m^3

Details of proposed water storage facilities are set out in Table 2-4.

Table 2-4: Proposed Water Storage Facilities

Facility	Location	Storage Capacity	Water Source	Destination (Water Use)
Raw Water Pond	Process plant	400,000 m3 (5 days of storage)	• Groundwater pumped from Northern Borefield.	• Directly to the plant – cooling tower and process facilities; • Indirectly to the plant – via the process water pond or plant site water treatment system; • Fire water system; and • Mine site freshwater tank.
Process Water Pond	Process plant (adjacent to raw water pond)	70,000 m3 (18 hrs storage)	• Raw water pond; • Plant freshwater tank overflow; • Reclaim water from rougher tailings dewatering plant; and • Effluent from the sewage treatment plant.	• Plant (process water).
Cooling Water Tank	Process plant	2,000 m3	• Cooled raw water.	• Process plant equipment.
Plant Fresh Water Tank	Process plant	675 m3	• Heat exchanger discharges; and • Treated raw water– if required.	• Process plant (where clean raw water is required - such as pump gland seal water and vibrating screen sprays).
Village Raw Water Tank	Village	4,170 m3 (24-hrs demand plus 2-hrs of fire water at 340 m3/h)	• Groundwater pumped from the Northern Borefield.	• Potable water treatment plant; and • Fire water.
Village Potable Water Tank	Village	2,600 m3 (provide 24-hrs demand)	• Treated raw water.	• Potable water around the village.

Facility	Location	Storage Capacity	Water Source	Destination (Water Use)
Mine Site Fresh Water Tank	Mine truck shop	1,150 m3 (24-hrs demand plus 2-hrs of fire water at 340 m3/h)	• Raw water pond.	• Fire water.

A site wide water balance (Figure 2-3) of water flows between the key infrastructure at the RDMS has been developed. Where possible, water will be retained in the process circuit, including recovery of water from tailings thickeners and concentrate filtration. In addition, approximately 1.18 Mm^3/annum of water is expected to be recovered from the TSF for recycling in the process plant (at full plant Phase 2 production).

While the rainfall in the region is low, there are storm events and water from these events will require management to prevent unnecessary contact between stormwater and operational areas, to prevent impacts on water quality and operational continuity.

Table 2-5: Stormwater Management for Key Areas

Key Area	Specific Management Actions
Plant area	Stormwater accumulating in the plant area will be collected and conveyed to stormwater holding and settling ponds for use in the mine's processes and dust control. These ponds will be designed to store a 1 in 25-year storm event during the construction phase and a 1 in 100 year during the operational phase.
Pit Area	Stormwater accumulating in the pit will be collected in a sump and pumped out of the pit for reuse in various mining activities. Bunding and stormwater channels will be constructed to prevent additional rainwater from the surrounding catchment to flow into the pit. Diversion channels will need to be adapted and hew channels constructed as both pits grow over time.
TSF	Rainwater falling on the TSF will be collected using the constructed drainage system and recycled back into the processing plant circuit.

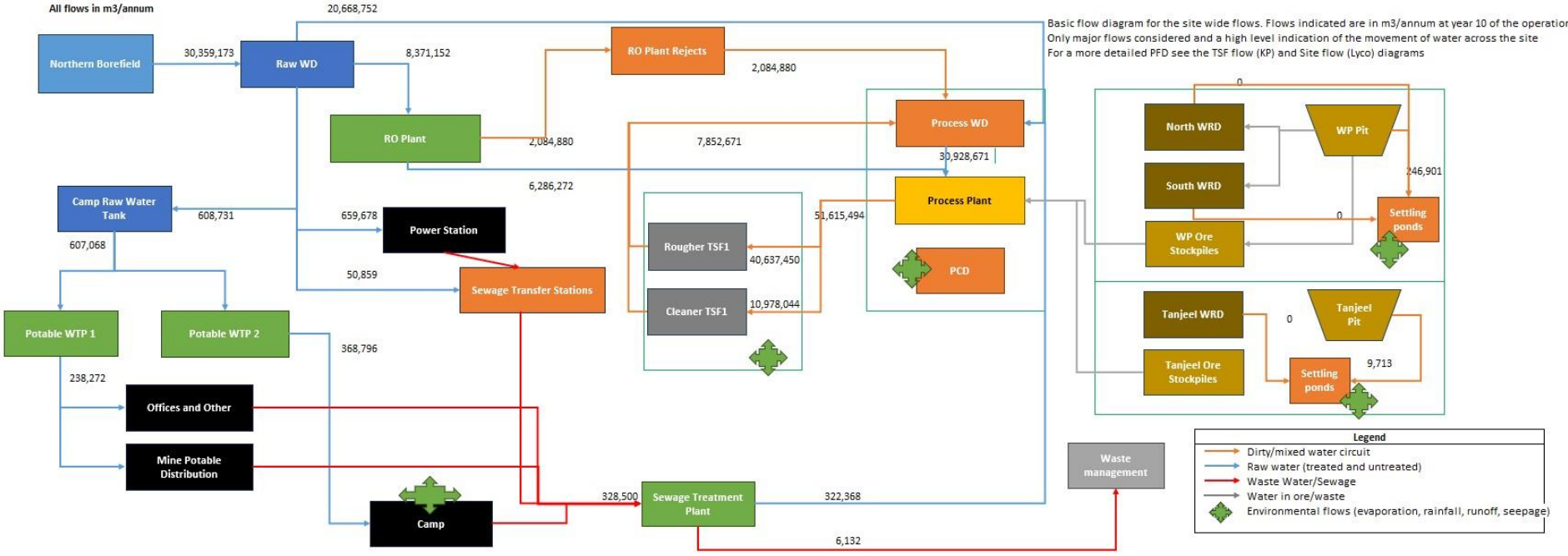

Figure 2-3: Basic flow diagram outlining the main flows and planned water infrastructure for Year 10 (m^3/annum)

2.4.5. Waste Management Facilities

The primary waste that will be generated by the Project is the waste rock from the open pit mining and tailings from the process plant. There will be dedicated management plans and Standard Operating Procedures (SOPs) for the management of these waste streams.

A detailed Waste Management Plan (WMP) will be developed for the Project to outline the responsible handling of the various general and hazardous waste streams.

2.4.5.1. General Waste Management

The RDMS will generate general and domestic waste such as food waste, cardboard boxes, glass bottles and other day-to-day waste. Further to this will be industrial waste streams such as concrete, metals, rubble, foam and other miscellaneous wastes. Waste will be disposed of via incineration, landfill emplacement or recycling (i.e. metals, plastics and paper products are expected to be sent off-site for third party recycling where possible).

The anticipated average annual volume of general and domestic solid waste that will be generated during the construction phase is around 890 tonnes per annum (tpa), increasing to 940 tpa while Phase 1 production and Phase 2 construction take place concurrently. Once the construction phase is complete these volumes will reduce to approximately 490 tpa, mostly owing to the significantly reduced number of people at site.

2.4.5.2. Hazardous Waste Management

Hazardous waste includes batteries, fuels and oils, hydrocarbons, contaminated materials from vehicle servicing and other mine related activities, and more. The WMP will consider a variety of disposal methods including onsite incineration, return of waste to responsible suppliers as part of their contract, and/or transported to an appropriate licensed facility where possible. Hazardous waste that will not be transported off-site will be stored in an appropriate facility on-site until it is correctly disposed of.

2.4.5.3. Waste Management Facilities

The following proposed waste management facilities will be constructed at the mine site of which the details can be found in section 3.2.4 of the ESIA:

- *Waste storage and transfer facility*: A centralised facility designed to accommodate both general and hazardous wastes streams.
- *Landfill:* The onsite non-hazardous landfill will be approximately 8 ha to accommodate an estimated 260,300 t (520,600 m^3) of waste.
- *Tyre Dump:* Will be adjacent to the landfill for tyre deposition.
- *Bioremediation Area:* Will be established close to the landfill to treat hydrocarbon-contaminated soils.
- *Solid and Liquid Waste Incinerator:* Will be used to dispose of mostly hazardous waste, and where necessary, general waste.

- *HFO Waste Incinerator*: A second incinerator will be dedicated to the disposal of HFO sludge with an approximate capacity of 15,000 kilograms (kg) per day.

2.4.5.4. Tailings Management

The tailings material will be stored in enclosed cells, where the TSF embankments will be constructed with predominantly waste rock and raised in stages to increase the storage capacity of the tailings impoundments. The TSF structure will include a low permeable layer to retain water within the TSF and the cells will include sand filter drains to reduce seepage and phreatic levels in the facilities.

The tailings material is classified into two categories, namely cleaner tailings and rougher tailings. The general design criteria used for the TSF are shown in Table 2-6.

Tailings will be conveyed from the processing plant to the TSF through High-Density Polyethylene (HDPE) pipes with the TSF deposition period estimated as 37.4 years and the total volume deposited 3.1 Bt over the LoM.

Table 2-6: TSF Design Criteria (April 2024)

Design Component		Predicted Design Criteria
Throughput	Rougher Tailings (88%)	39.6 Mtpa in Phase 1 79.2 Mtpa in Phase 2
	Cleaner Tailings (10%)	4.5 Mtpa in Phase 1 9 Mtpa in Phase 2
	Concentrate (2%)	0.9 Mtpa in Phase 1 1.8 Mtpa in Phase 2
Solids Content	Rougher Tailings	60% solids w/w
	Cleaner Tailings	45% solids w/w
Density	Rougher Tailings	1.59 t/m^3
	Cleaner Tailings	1.34 t/m^3
Seismic	Operating basis earthquake loading	Significant 1,000 years 0.28 g High 2,475 years 0.43 g Very High 5,000 years 0.58 g Extreme MCE 0.67 g
	Post-closure maximum credible earthquake loading	0.67 g
Hydrology	Embankment Levels	Designed to contain design storm events and maintain specific freeboard
	Freeboard	500 mm (preliminary estimate)

Design Component		Predicted Design Criteria
	Design Storm	Probable maximum flood
	Runoff diversion (construction phase)	1 in 25 year storm event
	Runoff diversion (operation phase)	1 in 100 year storm event

2.4.5.4.1. Rougher Tailings

The rougher tailings storage cells are designed to contain 2,728 Mt (88%) of the total tailings produced where the rougher tailings impoundment design will have a slope of 1:2 with a 40 m wide crest, to accommodate the two-way passing of mine haul trucks. The average height of the embankments will be 30 m with a maximum height of 66 m. At closure, the crest will be 20 m wide.

The rougher tailings have negligible acid-generating potential and impacts to groundwater is low due to extremely low infiltration rates predicted by hydrogeological modelling, the depth of groundwater across the site, and the highly mineralised, saline nature of the groundwater. For these reasons the base of these cells will be compacted but unlined.

Deposition of tailings will be controlled to accumulate supernatant water at a decant point. The water will be collected for reuse in the process plant. The embankments at the supernatant pond will be constructed downstream and will be lined with a single layer of 1.5 mm Linear Low-Density Polyethylene (LLDPE) liner. The other embankments will be constructed as centreline raises.

2.4.5.4.2. Cleaner Tailings

Three cells have been designed for the cleaner tailings (Figure 2-1) which will be constructed in 10 m high stages using mostly waste rock and water will be controlled during operations by adjusting spigot deposition, forming a large tailings beach and a relatively small pond near the decant structures. Water will be collected and circulated back to the processing plant for reuse.

These cells will be lined with 1.5 mm HDPE liner to prevent possible seepage from these impoundments as the cleaner tailings have a high potential for acid generation and are characterised by leachable metal concentrations exceeding water quality and risk assessment guidelines. Although the aquifer is limited in extent with no nearby receptors, RDMC are taking a precautionary approach to prevent any possible mobilisation of these contaminants.

2.4.5.4.3. Tailings Drainage Systems

A toe drain will be installed at the upstream toe of the embankments to promote drainage of tailings, and water collected will flow to a sump, where it will be pumped to the supernatant pond. An under-drainage system will be installed with a network of 100 mm diameter perforated HDPE pipes (‘finger drains’) that will flow into collector drains, in turn into sumps where water will be pumped back to the plant for re-use.

Piezometers will be installed in the embankments to monitor phreatic levels, and settlement pins in the downstream zone of the embankments will monitor for potential embankment

movements. The TSF has been designed to withstand significant seismic or storm events. The cells will be progressively closed to reduce long-term wind erosion and excessive dust.

Boreholes will be installed as per the Water Management Plan to monitor groundwater levels and regularly assess groundwater quality around the TSF.

2.4.5.5. Waste Rock Dump and Ore Stockpile Management

Two WRDs will be constructed, WRD North and WRD South, as well as two low-grade ore stockpiles to the west of the Western Porphyries Pit. The WRD and stockpiles will be approximately 60 m high with an estimated slope of 2H:1V (horizontal: vertical). The WRDs will be constructed with three lifts to achieve a height of approximately 180 m, each lift will have a set of modules.

Ore stockpiles will be constructed from the bottom up in 15 m lifts. A 20 m wide berm will be included every 30 vertical meters. The stockpiles will be reclaimed from the top down in 15 m lifts. The Tanjeel pit will have a high-grade ore stockpile and its own WRD.

2.5. Transport

The Project will use the existing road and rail networks to transport materials during construction and operational phases and utilise the air transportation option for personnel. The main Project transport routes (Road and Rail Transport Route) are shown in Figure 2-4.

2.5.1. Road Network

Existing roads will be used to transport supplies and equipment to the mine site for the construction and operational phases. The access roads to the mine site will also be upgraded and improved the as part of the project early works. The key highway system from Port Qasim/Karachi comprising the M10 Northern Bypass to the Regional Corporation for Development (RCD) Highway (also known as N-25 Highway) to Noshki and the N-40 Highway to Nok Kundi, with an approximate length of 1,200 km will be utilised.

The main equipment and materials that will be transported by road to the mine site during the construction phase include cement, steel, pipes, fuel, processing equipment, mining equipment, food and other supplies. In addition, diesel fuel will be transported to the mine site via road during the construction phase.

The mine haul roads will be constructed to facilitate the transport of the ore and waste rock from the open pit to the crushers, ore stockpile processing plant and WRDs.

2.5.2. Air Transportation

Charter flights will transport personnel (not local to the region) routinely between Karachi and the mine site as well as for any emergency medical evacuations. A private airstrip has been upgraded within the Surface Rights Area (SRA) to the south of the accommodation facility ~10 km from the RDMS.

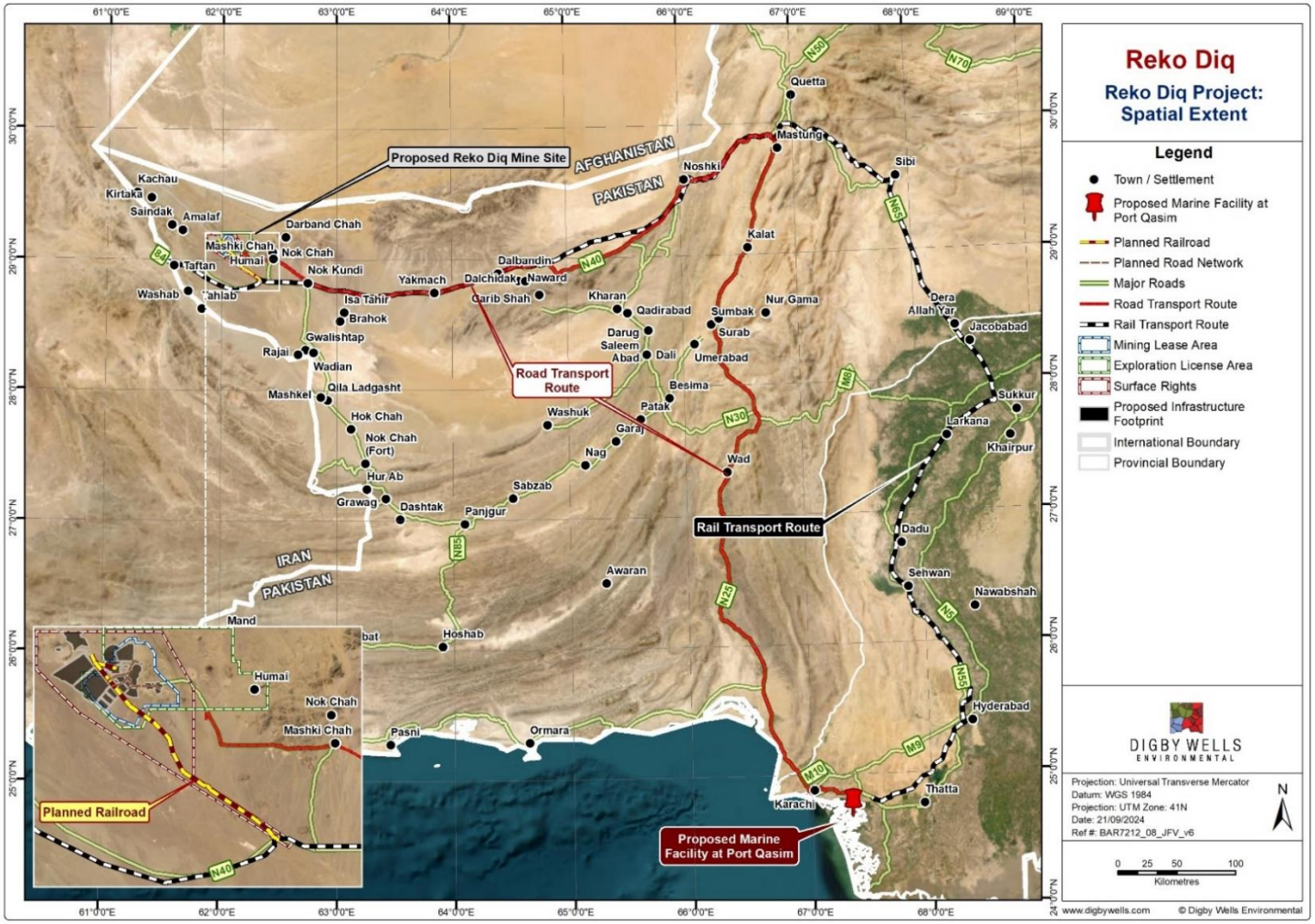

Figure 2-4: Road and Railway Transport Routes

2.5.3. Rail Transport

Transport of the concentrate to, and fuel and other goods from Port Qasim will be via the existing railway line, passing through the Balochistan and Sindh provinces with the existing rail route approximately 1,350 km in length. A new project dedicated railway section is anticipated to be constructed from the mine site to the existing railway line at Nok Kundi.

The fuel required during operations will be transported in bulk via rail from various import terminals at Port Qasim or Karachi Port. Concentrate will be railed from the mine to Port Qasim using special tipping containers (6 m by 2.3 m) with an average carrying capacity of 27.5 tons each.

The rail transport will terminate at an existing railway loop located 13 km northeast of the Pakistan International Bulk Terminal (PIBT). Offloading and rail maintenance facilities will be constructed here, and concentrate will be trucked to PIBT using existing roads within the Port industrial area for further handling. It is anticipated that there will be 46 round trips for trucks per day during Phase 1 and then an additional 46 round trips in Phase 2.

2.6. Port Facilities

Port Qasim is a marine terminal port located 50 km from Karachi, on the coastline of the Arabian Sea, in the Malir District of Sindh Province of Pakistan. It is operated by Port Qasim Authority (PQA) and handles more than 40% of all Pakistan's cargo in and out of the country. The Project will make use of the existing PIBT where all facilities are operated by PIBT and as such, the PIBT approved ESIA by EMC (2011) and associated plans will continue to guide the PIBT operations while used for the handling and exporting of the Project's concentrate.

An area will be leased to RDMC for the construction and operation of a storage shed, for which RDMC will be responsible and all other activities will be ancillary and operated by PIBT. PIBT includes access via a 45 km long navigation channel providing safe and convenient passage for vessels. The Terminal has a built capacity for handling up to 12 Mt of coal and 4 Mt of cement and clinker per annum, which together can be further enhanced to ramp up to 20 Mt of bulk product export per year. For this reason, there will be no need for additional port infrastructure to facilitate the requirements of the Project.

2.7. Land Requirement

Based on the current mine plan, no private land acquisition is anticipated, or resettlement required for the Project. All of the land currently required for the Project is held by the Government and will be either leased or purchased from the Government of Balochistan.

2.8. Employment

Preference will be given to locals for employment and appropriately qualified individuals from the surrounding communities. The type of employment required includes skilled and management, semi-skilled (such as drivers, fitters and carpenters) and unskilled (labourers and guards).

3. Alternatives Assessment

During the feasibility studies and this ESIA process, several alternatives were investigated. The main alternatives (Chapter 4 of the ESIA) assessed for the Project are summarised below, with key components being discussed in Section 4 of this Executive Summary:

- Water supply sources (groundwater abstraction and coastal desalination plant with a pipeline to the mine site);
- Power supply sources (various renewable and non-renewable options and combinations, grid connection);
- Power plant technology options (reciprocating engines, boilers, turbines);
- Location of the Project facilities e.g., TSF locations;
- Mode of transport of the concentrate (rail, road, pipeline);
- Location of the marine terminal for shipment (Port Qasim, Gwadar Port);
- Influx mitigation (on-site vs off-site accommodation, RDMC accommodation strategies and Corporate Social Responsibility (CSR) strategy in Nok Kundi);
- Technology (TSF disposal / water recovery options);
- Mining methods (surface / underground);
- Ore separation techniques (physiochemical separation (flotation), heap leaching); and
- Dewatering techniques (filtration, thickening, drying).

4. Key Focus Areas

Extensive studies were conducted evaluating a variety of environmental and social aspects that may be impacted upon by the Project's activities. The results of these are included in the body of this ESIA and the specialist reports included in the Appendices. A number of Key Areas were identified in collaboration with stakeholders, where the majority of impacts and management actions will be focussed; biodiversity, water, socioeconomic, power supply and GHGs.

4.1. Stakeholder Engagement

RDMC emphasises community and stakeholder engagement as a core aspect of the ESIA process. Engagement ensures sustainable development and integrates stakeholder interests and knowledge into the Project's planning and execution. Stakeholder consultations were conducted as part of the ESIA process between 2022 and 2024. The engagement campaigns spanned both the Sindh and Balochistan provinces.

A SEP has been developed and is being implemented for the Project and will be maintained during all the phases of the Project.

A detailed description of the engagements undertaken, and the various outcomes are set out in Chapter 7 of the ESIA report.

4.1.1. Consultation Process Adopted

The stakeholder engagement process for the Project was designed to ensure meaningful participation and engagement with all stakeholders. The process also complied with public consultation guidelines stipulated in the national and provincial legislations and by the IFC in the Stakeholder Engagement Handbook.

The engagement process followed key principles such as cultural sensitivity, an interactive approach, transparency, inclusiveness, flexibility, and capacity building. These principles ensured engagement was respectful of local customs and norms, involved two-way communication and stakeholder input in decision-making, was open and informative, represented all stakeholder groups including vulnerable populations, was tailored to the specific phase of the project and stakeholder needs, and enhanced stakeholder capacity through interaction.

The consultation methods utilised, included the following:

- Focus group meetings to gather detailed feedback and discuss specific issues;
- One-on-one interviews with key individuals;
- Workshops and seminars to provide information and gather input;
- Public meetings for regular updates and discussions with the general public; and
- Separate consultations for men and women to respect local cultural norms.

The stakeholders identified for the engagement included local communities, vulnerable groups such as women and young people, as well as government institutions including the environmental regulators, and Non-Governmental Organisations (NGOs).

4.1.2. Engagements Undertaken

A summary of the engagements undertaken to date are provided below.

4.1.2.1. Community Consultations

Community consultations for the ESIA were conducted in four rounds which are discussed below (Figure 4-1). The photographs of community consultations are shown in Figure 4-2.

- **Round 1 – ESIA Preparation:** The settlements near the Reko Diq Mine Site, associated infrastructure (i.e. water supply area), and other water supply investigation areas were consulted between 13 September and 10 October 2022. This included settlements near the RDMS and associated infrastructure and also included Nok Kundi and Dalbandin, as the important administrative centres in the region. A total of 15 communities were consulted during this round. A Background Information Document (BID) was shared with the community and institutional stakeholders. The BID included information regarding the Project, the ESIA process

and how they can participate and was prepared in English and the local Balochi language.

- **Round 2 – ESIA Preparation:** The settlements near the Rail Transport Route and Port Qasim were consulted in Round 2; from 10 October -14 October 2023 as part of the consultations for the ESIA preparation and socio-economic data collection. In this round, a total of 15 communities were consulted where a Background Information Document in both English and Urdu was prepared and shared as per Round 1.
- **Round 3 – ESIA Feedback:** The settlements near the RDMS and associated infrastructure were consulted in Round 3, from 15 February - 20 February 2024, to provide information relating to the Project early works and provide opportunity for feedback. Nine communities were selected based on their proximity to the early works activities. Project information materials were prepared in English and Urdu and included information about the RDMC grievance process.
- **Round 4 – ESIA Roadshow and Feedback:** The settlements near the RDMS and associated infrastructure, along the Rail Transport Route and at Port Qasim were consulted between 21 June - 6 July 2024, as part of the ESIA Roadshow. During this round, details of the Project and ESIA process together with preliminary impacts identified were provided. A total of 21 communities were engaged during this round and opportunities for feedback were provided. Engagement materials included a variety of information documents provided in both English and Urdu.

The main concerns and points of discussion included as follows:

- **Employment:** Permanent employment opportunities for local community members with a preference to be given to the locals during hiring;
- **Physical and Social Infrastructure Development:** Access to clean water and roads and lack of health and educational facilities.
- **Women's Issues:** Limited opportunities, exclusion from decision-making.
- **Safety:** Proximity of railway tracks, need for fences.
- **Pollution:** Air pollution from nearby projects, water quality concerns.

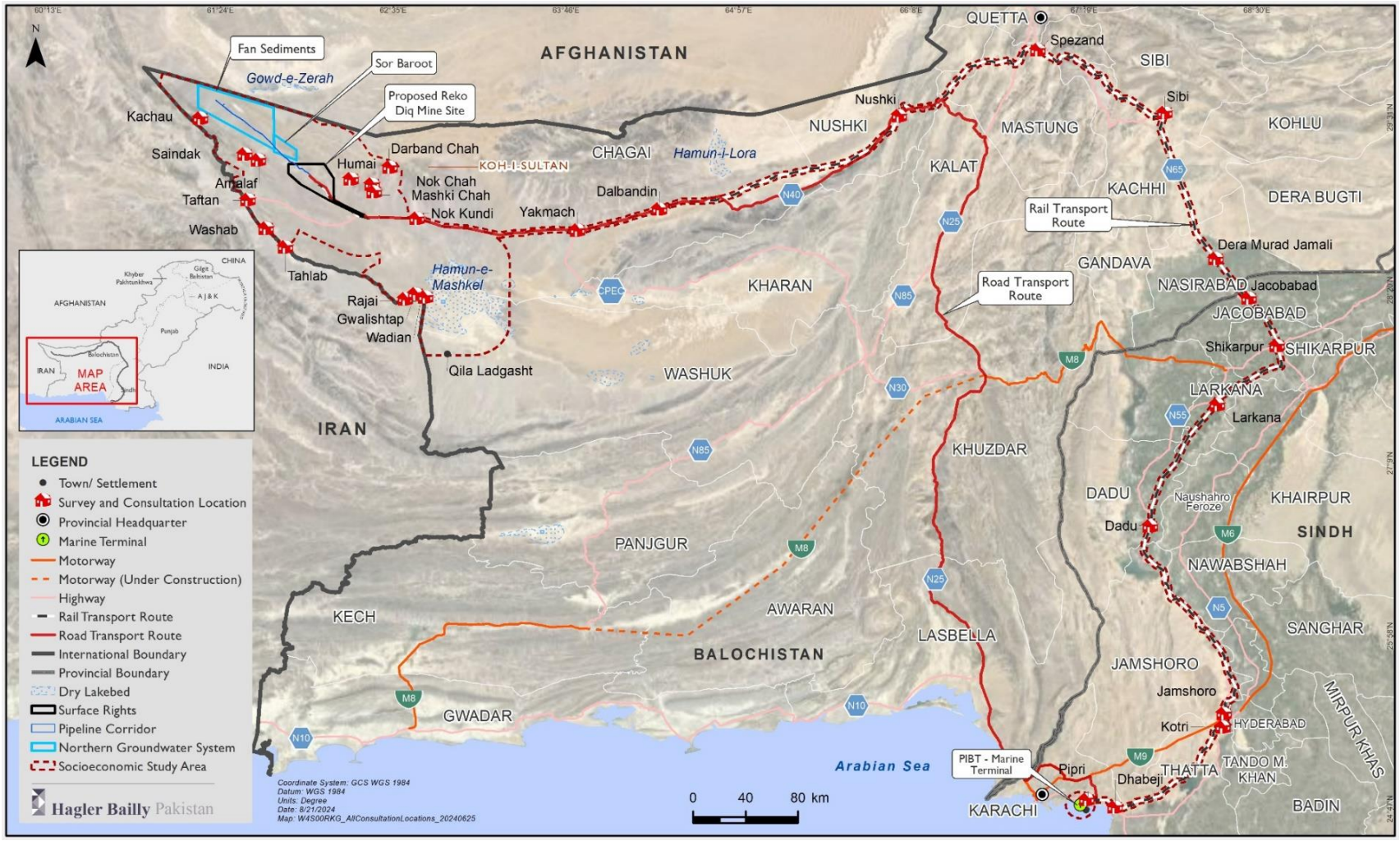

Figure 4-1: Location of Consultations

Consultation with men at Humai settlement – Round 1

Consultation with men at Nok Chah settlement – Round 1

Consultation with women at Humai settlement – Round 4

Consultation with women at Nok Chah settlement – Round 4

Consultation with women at Nok Kundi – Round 3

Consultation with men at Nok Kundi– Round 3

Consultation with men at Dhabeji – Round 4

Consultation with men at Dalbandin – Round 4

Figure 4-2: Photographs of Community Consultations

4.1.2.2. Institutional Consultations

Institutional stakeholders included relevant government departments/ agencies and NGOs that were consulted for the Project. A total of 28 institutional consultations were carried out across three rounds. The consultations are outlined below and shown in Figure 4-3

- **Round 1:** The initial consultations, aimed at information disclosure, were conducted between September and October 2022. A total of nine institutional stakeholders were consulted during this round.
- **Round 2:** The remainder of the information disclosure related consultations were conducted in September 2023. A total of eight institutional stakeholders were consulted in this round of consultations.
- **Round 3:** Additional feedback consultations were undertaken between June and August 2024. Apart from follow up with institutional stakeholders consulted previously, the National Transmission & Despatch Company (NTDC) and Ministry of Railways were also consulted due to their significance in the Cumulative Impact Assessment (CIA) context. A total of 11 institutional stakeholders were consulted in this round.

Consultation with Deputy Director, Agriculture Department, Dalbandin

Consultation with Secretary, Coastal Development and Fisheries Department, Quetta

Consultation with Deputy Commissionaire, Dalbandin

Consultation with District Officer Education, Education Department, Dalbandin

Consultation with Deputy Director Environment (EPA), Quetta

Consultation with Secretary Forest and Wildlife Department, Quetta

Figure 4-3: Photographs of Institutional Consultations

4.1.3. Community Development Programme Framework

The Community Development Programme framework is based on Barrick's global strategy, which aims to develop a solid, long-term relationships and development strategy with stakeholders based on trust, respect, transparency, and partnership. This is focused on five sustainable development pillars: education, access to healthcare, water and environment, food security, and local economic development.

Barrick and RDMC believes that nobody knows the needs of our host communities better than the communities themselves. Barrick and RDMC understands the significance of setting up the Community Development Committees (CDCs) to allocate the community development and investment budget to those initiatives most desired by the local community and improve living standards of local communities through access to quality education, health, clean drinking water and income generation opportunities.

Although the CDCs are self-directed, they are guided by core development principles mentioned in Section 7.7.4.1 of the ESIA report. RDMC has set up a process for CDCs monitoring and assessment which is also presented in Section 7.7.4.4 of the ESIA report.

Three CDCs have been established to date, with ~ $5M spent on community projects over the first 18 months of the programme.

- *Par-e-Koh CDC*: Centred in Humai and representing the nearest settlements to the project (Humai, Nok Chah, Mashki Chah and Darband Chah).
- *Nok Kundi CDC*: Focus on urban centre i.e., Nok Kundi town.
- *Fan Sediments CDC* (Northern Groundwater System): Comprising the communities closest to the Fan Sediments (mainly Kachow and Kirtaka).

As the Project advances two additional CDCs will be established, one at District level and one at Division level.

4.1.4. Continual Engagement

An on-site Community Relations team was established shortly after reconstitution of the Project to ensure early engagement. A formal SEP was developed which details the company

approach to stakeholder engagement and the steps it intends to take during the development and operation of the Project, including a grievance mechanism. The SEP was developed, and is being implemented, in accordance with Barrick policy and, the IFC PSs and forms a component of the Reko Diq Environmental and Social Management System (ESMS). The Plan adopted the principles outlined in the IFC Stakeholder Engagement: A Good Practice Handbook.

A consultation schedule was developed and maintained, including monthly CDC meetings, project update sessions at nearby communities, engagement with local political organisations, youth groups, key religious leaders, district administration, and key government agencies, and bi-monthly meetings with key divisional level stakeholders. A consultation register was maintained to record the date of engagement, nature/type of engagement method, stakeholders involved, names of RDMC representatives involved, and location of engagement.

RDMC will continue to engage with local communities and institutions throughout the Project's lifecycle. Regular engagements about the Project and its development and effectiveness of the GRM will ensure that the communities' concerns and suggestions are recorded and appropriately addressed.

4.1.4.1. Grievance Mechanism

A structured grievance process is in place to ensure that community members can easily and effectively raise concerns related to the Project. This includes receiving, recording, assessing, and responding to grievances, with a focus on transparency and timely resolution. The GRM include details related to the GRM flowchart, responsibilities, communication channels etc. The grievance process has been and will continue to be communicated through a number of forums and through general community engagement and discussions. The details on the grievance process, forms of engagement, schedule and register of consultations are provided in Section 7.6 of the ESIA report.

4.1.5. Future Engagements

RDMC plans to carry out future engagements as part of the ESIA review process. These engagements will cover the ESIA Disclosure Campaign following the ESIA Public Forum.

- **Further ESIA Disclosure:** RDMC will conduct another round of engagements to continue to disclose the Project ESIA information, including key environmental and social impacts and their mitigations. The RDMC Community Relations team will visit and conduct sessions with both men and women to keep them informed about the Project's activities and how the Project is considering their needs in development initiatives.
- **ESIA Public Forum:** This engagement will be part of the ESIA review process to meet the regulatory requirements of the EPA. The forum, organised by the EPA, will provide a platform for the general public and institutions such as government officials and NGOs to share their feedback and views about the Project before a decision is

taken regarding the ESIA. This public forum is crucial as it ensures that all stakeholders have an opportunity to voice their opinions and concerns, promoting a participatory approach to environmental governance. The feedback collected during this forum will be considered in the final decision-making process, ensuring that the Project aligns with both regulatory standards and community expectations.

4.2. Socio-economic

A Socio-economic Baseline Assessment was conducted as part of the ESIA process and is available in Section 5.5 of the ESIA report. Information on the prevailing socio-economic conditions within the settlements in the region of the RDMS, Northern Groundwater System, along the Rail Transport Route and near Port Qasim was collected through field surveys in 2022 and 2023 including household-level surveys, settlement-level surveys, and Focus Group Discussions (FGDs). Data from secondary sources was also utilised, where required, to strengthen the assessment and evaluate trends in socio-economic conditions.

The Socio-economic Study Area considered local communities, which may be impacted positively or negatively by the Project's activities and covers 13 districts of Balochistan and seven districts of Sindh Province. These details are available in Section 5.5 of the ESIA report.

The surveyed and consulted settlements were grouped according to the following Project facilities:

- **RDMS and associated infrastructure** including settlements near the Mine Site, the Northern Groundwater System and Nok Kundi and Dalbandin, which are located within the Balochistan Province. Also included were settlements at other water exploration areas. Nok Kundi and Dalbandin were included because they are the primary administrative centres in the area.
- **Rail Transport Route including Port Qasim**, with the railway track between Nok Kundi and Dera Murad Jamali within Balochistan, and from Jacobabad to Port Qasim in Sindh.

A total of 28 settlements were surveyed during the Study, of which 15 settlements were surveyed and consulted in the 2022 and 13 settlements were surveyed and consulted in 2023 (Table 4-1).

Table 4-1: Surveyed Settlements in 2022 and 2023

Location	Surveyed Settlements		Type of Survey
	Number	Name	
2022 Survey			
RDMS	15	Balochistan – Humai, Nok Chah, Mashki Chah, Darband Chah, – Kachau, Saindak, Amalaf, Taftan, Tahlab, Washab, Rajai, Wadian, Gwalishtap, Nok Kundi, Dalbandin	Settlement and household level surveys

Location	Surveyed Settlements		Type of Survey
	Number	Name	
2023 Survey			
Rail Transport Route and Port Qasim	13	Balochistan – Yakmach, Nushki, Spezand, Sibi, Dera Murad Jamali Sindh – Kotri, Jamshoro, Larkana, Jacobabad, Dadu, Shikarpur, Pipri, Dhabeji	Settlement-level surveys
Total	28		

4.2.1. Reko Diq Mine Site and Related Infrastructure

The settlements around RDMS and related infrastructure are mostly rural and isolated. The data on key socio-economic indicators, collected from the household and settlement-level surveys within these settlements, is presented below.

4.2.1.1. Demography

The settlements around RDMS have an average household size of 6.9, with variations between 6.2 to 8.0 members per household. The population is predominantly Sunni Muslim, Balochi and Brahui are the main languages spoken. Communities are organised into various tribes and castes, with the Syed, Muhammad Zai, and Muhammad Hassani tribes being the most prominent. Housing structures are primarily Kutcha (mud and wood), with some Semi-Pucca and Pucca structures in the towns like Taftan, Saindak, Nok Kundi, and Dalbandin.

4.2.1.2. Employment and Livelihood

Employment opportunities are limited and the area experiences unemployment rates of 26% for men and 42% for women, which is significantly higher than the Pakistani national average.

Primary sources of income in the area are, cross-border trading, livestock rearing, and labour in local mining and construction. Some communities also engage in agriculture, specifically settlements where groundwater and spring water support farming activities such as Amalaf, Saindak, and Kachau (all near the Iran border). Women primarily contribute through livestock rearing and labour in small mining projects such as marble, iron, and pumice mining projects near Darband Chah settlement.

4.2.1.3. Vulnerability

Poverty is widespread in the area. Many households struggle to secure stable incomes, and a significant portion of the population spend more than two-thirds of their income on food and cooking fuel. The average monthly household income is PKR 30,219 (~$108), with a notable proportion of households living below the national poverty line of PKR 3,030 per person per month (~$11).

Women face economic vulnerability due to lower educational levels and restricted mobility. Disabilities, both physical and mental, are present but often unrecognised due to stigmatisation. Women-headed households are rare, and most elderly people and widows rely on family support.

4.2.1.4. Social Infrastructure

Health facilities are limited. Most settlements lack basic healthcare services. The nearest health facilities are often several kilometres away. RDMC and partners are working to improve access through the development of community health centres and mobile health units. Education facilities are also scarce, contributing to low literacy rates (male 48% and female 14% based on the socio-economic surveys carried out for the Project). There are significant disparities in terms of gender with regards to access to education and enrolment into education facilities. According to the socio-economic surveys, a total of 80% of the enrolled population are males, compared to just 20% females. RDMC has developed primary schools in Humai, Mashki Chah, Darband Chah and Nok Chah and is collaborating with education service providers to improve educational resources in the area.

4.2.1.5. Physical Infrastructure

The physical infrastructure is underdeveloped. Roads connecting smaller communities are typically unsealed and in poor condition. Larger towns have better access via the national highway N-40. Electricity is sourced from local grids or solar panels. Many households rely on wood and Liquified Petroleum Gas (LPG) for cooking and heating. Water scarcity is a significant issue. Supply is limited to groundwater and further restricted by water quality issues due to high salinity and contamination. RDMC has already installed potable water treatment plants in some villages to start to address these issues.

4.2.2. Rail Transport Route and Port Qasim

The settlements along the Rail Transport Route and near Port Qasim, surveyed in 2023, include both rural and urban settings with housing structures ranging from Kutcha to Pucca.

4.2.2.1. Demography

The average household size in these communities is 6.7, with variations between 3.8 to 8.0 members per household. The population is predominantly Muslim, with Sunni Muslims being the majority. There are also Christian and Hindu communities present in some areas such as Kotri, Larkana, and Shikarpur. The primary languages spoken include Sindhi, Siraiki, Balochi, Pashto, and Urdu, which is universally understood.

4.2.2.2. Employment and Livelihood

Unemployment along the Rail Transport Route is high, with 32% of men and 90% of women unemployed. The primary sources of income include government and private sector jobs, self-owned businesses, labour in nearby industries, and livestock rearing. Agriculture is also significant in some settlements, with crops such as wheat, maize, and vegetables being

cultivated. The average household income varies, and many households rely on multiple income sources to sustain their livelihoods.

4.2.2.3. Vulnerability

Poverty levels along the Rail Transport Route are generally lower than RDMS area, and most households live above the poverty line. However, economic vulnerability persists due to high unemployment rates and limited opportunities. Disabilities, both physical and mental, are present but often unrecognised due to stigmatization. Elderly individuals and widows are typically supported by their families, with few elderly people working as labourers or in private jobs.

4.2.2.4. Physical Infrastructure

The physical infrastructure along the Rail Transport Route includes connections to main cities and towns through sealed national highways (N40, N55, N65, and N5). While main roads in larger towns are in good condition, community pathways and access roads within settlements are often unsealed and poorly maintained. Most settlements have access to electricity and mains gas, with some relying on LPG for cooking and heating. Water supply is primarily from groundwater, with public water supply and treatment plants available in larger settlements like Jacobabad, Sibi, Dera Murad Jamali, Larkana, and Pipri.

4.2.2.5. Social Infrastructure

Primary health facilities are available in most surveyed settlements. Health facilities along the Rail Transport Route include Basic Health Units (BHUs), Tehsil Headquarters (THQs), and District Headquarters (DHQs), with Female Health Visitors/Workers providing basic health services and vaccinations. Common illnesses include flu, fever, dysentery, malaria, and high blood pressure. Sanitation facilities vary, larger towns have municipal sewage systems, while smaller settlements rely on pit latrines. Primary and high schools are typically available in most settlements, while larger towns also have colleges and universities.

4.2.2.6. Impact Assessment

These have been grouped according to the phase of the Project in which they will occur; Construction, Operation, Decommissioning and Life of Mine. The socio-economic impacts identified and assessed for the Project are listed below with a brief description of each impact. Mitigation measures are provided to reduce the severity of negative impacts, while enhancement measures are provided to increase the positive outcomes.

There are several significant socio-economic benefits of the Project which are anticipated extend for the Life of Mine are detailed below.

4.2.2.6.1. Impact 01: Employment Opportunities Provided by the Project (positive impact)

Employment opportunities in the Project area are extremely limited. Socio-economic studies completed for this ESIA found unemployment rates of up to 50%. The Project is anticipated to generate significant employment opportunities across all project Phases, including:

- A predicted workforce of 10,000 during the construction phase with RDMC and contractors, a significant portion of which will be available to local people (approximately half of all RDMC and contractor roles are expected to be available for local people). The Project will provide important on the job training across a variety of skills; and
- Approximately 6,000 jobs during peak operations during Phase 2 with RDMC and contractors. During this period the intent is for approximately 90% of the total workforce to comprise local people.

Through direct employment and indirect mechanisms which stimulate economic activity in the region, the Project will contribute to poverty alleviation and improvements to community well-being. It will not be able to provide direct employment for everyone. While the benefits are likely to be more significant in communities nearest to the RDMS, the flow on effects will extend across the region.

The Project has and will continue to develop a local procurement strategy to further enhance employment opportunities and economic activity across the region. The Project will strive to ensure that employment opportunities are equitable and inclusive of women and other vulnerable groups.

4.2.2.6.2. Impact 03: Social Development and Uplift (positive impact)

The Project has committed to a significant community development program. These initiatives will primarily focus on enhancing local infrastructure and services, with particular emphasis on health, education, water supply, food security and economic development. RDMC has been, and will continue to, work with communities and government to identify their needs and implement initiatives accordingly.

Community Development activities will be focused on communities located closest to the Mine Site during the construction phase.

4.2.2.6.3. Impact 04: Skill Development (positive impact)

The Project has and will continue to implement training programmes to enhance employment. The training programmes will focus on maximising the participation of members from local communities in the Project.

The knowledge and skills acquired by the local community will increase their employability increasing their access to future opportunities when seeking employment in any project. The presence of highly trained workers, qualified in multiple skills, will also benefit the local economy, thereby having a positive ripple effect on the overall socio-economic landscape.

These training programmes will not only equip individuals with specific job-related skills but also foster a culture of continuous learning and professional development within the local workforce.

While the Project will provide significant benefits for the local communities and the region in general, there are other potential negative impacts that will need to be managed. The key socio-economic impacts are details below.

4.2.2.6.4. Impact 02: Unmet Community Expectations (Real or Perceived)

A potential source of discontent or conflict with local communities is the real or perceived inequitable access to Project opportunities, including employment and indirect economic opportunities. Through engagement during the socio-economic surveys and formal Stakeholder Engagement, nearby communities have also shared their expectations with respect to increased community development initiatives and general uplift of the local communities. It is also expected that there will be substantial financial gains to RDMC as a result of the Project. In contrast, a significant proportion of the local settlements are impoverished and lack the necessities of life, and this may inadvertently create discontent among the local populace as the monetary gain derived from the Project may not adequately trickle down to the communities (real or perceived). Grievances can be expected from community members if the distribution of jobs and access to development initiatives among local communities is perceived to be unfair. Objections may arise if individuals from outside the settlements affected by the Project facilities, are seen to be taking opportunities that local community residents feel they are entitled to.

Proactive measures are required to manage this perception, and ensure the equitable distribution of benefits, especially for vulnerable and marginalised groups. In response, the Project has developed a SEP that captures community perceptions and concerns and includes a comprehensive GRM to enable the potential grievances and concerns of the local communities to be addressed. Additionally, the Project will also prioritise women and vulnerable individuals for any community development initiatives. As noted above, significant employment opportunities are expected to be generated, through direct employment with RDMC and contractors, and though economic development stimulated through local procurement and other social development strategies. Through the RDMC Community Development Programme, communities are empowered and encouraged to make their own decisions with regards to infrastructure and social development to directly address social and infrastructure challenges in their communities.

4.2.2.6.5. Impact 05: Pressure on Social Infrastructure due to Increase in Population

The Project will likely attract an influx of people seeking direct employment or other economic opportunities. This influx of workers may place added pressure on already underdeveloped infrastructure and services in local communities. Influx of people may lead to heightened risks such as the spread of communicable diseases, unplanned development, social tensions, law and order issues and conflict.

To reduce the burden on local infrastructure, the Project is committed to community development, however this is a multistakeholder issue that will need to be led by various levels of Government, and RDMC will support where appropriate.

4.2.2.6.6. Impact 06: Increase in Social Ills due to Population Influx

The influx of workers and increased traffic through communities near the mining project may lead to higher crime rates, substance abuse, and other illicit activities. The presence of a transient workforce can exacerbate vulnerabilities to substance abuse due to stress and isolation. Additionally, the introduction of outsiders may increase risks of drug trafficking, theft, and other criminal behaviours, undermining community safety and social cohesion. Managing these impacts involves multiple stakeholders, including government, the project developer, and the communities. The largest influx is expected at Nok Kundi, with other settlements likely to manage smaller influxes.

4.3. Indigenous Peoples

The identification and assessment of any Indigenous Peoples (IPs) were done in line with IFC PS7 on IPs. The assessment process involved screening for the presence of IPs in and around the Project area. This process was undertaken to ensure that any identified IPs are not adversely impacted by the Project and to establish an ongoing relationship based on Informed Consultation and Participation. Dr. Hafeez Ahmed Jamali, Director General of Balochistan Civil Services and an expert in socio-cultural anthropology, conducted an independent peer review of the screening findings, which are incorporated into the ESIA.

According to IFC PS7, IPs are defined as social groups with distinct identities from mainstream national societies, often marginalised and vulnerable. These groups typically have a collective attachment to geographically distinct habitats or ancestral territories, unique cultural, economic, social, or political institutions, and a distinct language or dialect.

The assessment highlighted that “54 self-identified groups” were recorded during the socio-economic surveys, but none met the IFC PS7 criteria for IPs.

The screening concluded that while there are IPs that exist in Pakistan, no groups meeting the IFC definition of IPs were present in the socio-economic study area. However, the Baloch people, while not classified as IPs, were identified as an “ethnic minority” requiring additional safeguards due to their history of marginalisation. The Baloch, who form an ethnic majority in Balochistan, the largest geographical province of Pakistan, follow tribal laws similar to those in neighbouring regions and do not have unique customary or ancestral links to the natural resources of the area. They primarily engage in livestock herding, similar to other rural areas in Pakistan, and seek higher education and employment opportunities outside the primary sector. The socio-economic data collected did not indicate any unique forms of livelihood or ecosystem services specific to the land within the Project’s footprint.

RMDC through its stakeholder engagement mechanisms is committed to meeting international principles so that all groups that have been subject to political and social marginalisation are considered in the Project’s decision making and planning.

4.4. Land Acquisition

An assessment of the Land Acquisition and Involuntary Resettlement currently contemplated for the Project was also conducted against the requirements of the IFC PS5 and is detailed in Chapter 5 of the ESIA report. The assessment process involved screening to assess whether the requirements of the IFC PS5 are triggered for the Project. The findings of the assessment are:

- No physical displacement will be required.
- In terms of existing land use, there are no structures or agricultural land within the Mine Site area except for the camp site established by the Project. There is presently little to no potential for pastoral use or agricultural development in the area as there are no suitable grazing areas, no easily accessible water resources and very poor quality soils.
- The socioeconomic studies conducted for the Reko Diq Mining Project revealed that there are no land-based, wage-based, or enterprise-based livelihoods affected by the Project activities.
- Agricultural activities do occur in the region, however these are predominantly in areas with better water access such as along the Iranian border and in some of the mountain areas, however these are far from the Project and will not be impacted. Pastoral use, primarily free-roaming camels, may experience very minor disruptions, however the Project area is only a very small part of a much larger roaming area. Timber and firewood resources, hunting, and ethnobotany activities are also unaffected, as there are no plant or animal species of any commercial or utilitarian value within the project area.
- No wage-based activities or businesses are connected to the land being acquired. Cross border traders have in the past transited through the Project area, however this has changed due to a separate Government project constructing fencing along the Pakistan border shifting trading routes further east.
- Surveys have not identified any sites of cultural significance within the Project area.

4.5. Groundwater

The project is located in a water scarce desert area with low rainfall however substantial volumes of water are required to develop and operate the proposed mining Project: approximately 1.6 GL/a in construction, 24 GL/a in Phase 1, 48 GL/a Phase 2, and ~1.6 GL/a during decommissioning.

RDMC acknowledged the criticality of securing a sustainable and cost-effective water supply and so early engagement as well as Environmental and Social screening focussed on identifying possible sources of water which would meet these requirements.

The following sections outline the screening process undertaken by RDMC, the areas prioritised for further investigation and the detailed hydrogeological studies and results.

4.5.1. Water Sources Alternatives

A variety of factors were considered when identifying a potential water source including the volume and quality of water available in the resource, proximity of the water source to the operation, the associated environmental and social impacts and/or benefits and the engineering and related costs required to deliver water to the point of use.

The Project is located in a region with extreme arid climatic conditions where no surface water sources were available and so the Project focussed on exploring the abstraction from local groundwater systems and/ or transporting treated water from the Arabian Sea (near Gwadar Port, South of the Project).

In December 2022, water exploration no-objection certificates (NOCs) were granted to RDMC for the purpose of exploring groundwater resources in Balochistan, namely; Humai, Sorbaroot, Mouaz Kachow Fansediments (Fan Sediments), Patangas (Patangaz), Tahlab, South of Nokkundi, Koh-e-Sultan, EL5 South, Washuk (South Mashkel) and Mashkel Rud.

An assessment was carried out to rank each investigation area and prioritise in terms of viability for active exploration for a water supply. Several options were not advanced for immediate investigation due to low prospectivity (e.g. fractured rock type aquifers with likely very limited storage). A further detailed assessment evaluating the remaining four investigation areas (Fan Sediments, Patangaz, Tahlab and Nokkundi South) against the following criteria was carried out:

- **Physical Resource** (including the conceptual understanding to date, aquifer prospectivity, heterogeneity and storage as well as recharge to the aquifer system).
- **Environment** (habitat value, proximity to protected areas, cross-border impacts, potential impact to groundwater and limitations for supply).
- **Socio-economic** (potential impacts to water quantity for drinking and economic purposes, permits and legal restrictions).
- **Technical** (design complexity, reliability, additional studies required, climate adaptability, impact on closure and expansion flexibility).
- **Project Costs** (capital, operating and closure costs).

It was determined that the level of social risk associated with Tahlab was too great due to its proximity to important agricultural areas along the Iranian border as well as the water supply borefield for the Sandaik Copper Mine.

The remaining potentially viable investigation areas were carried forward for further investigation and are referred to as the Northern Groundwater System (including Fan Sediments and Sor Baroot) and Southern Groundwater System (incorporating Patangaz and Nok Kundi South).

The Northern Groundwater System is in closer proximity to the Project mine site and was the focus of previous water supply feasibility studies undertaken in 2009 when a wealth of information had been collected. For these reasons this system was prioritised for the Water

Supply Feasibility Study which commenced in February 2023 focussing on adding to the existing data available from previous investigations.

In parallel, a study was commissioned to evaluate the option of a desalination plant at Gwadar Port, with a pipeline to the Project mine site along the proposed route presented in Figure 4-5. The study included pre-feasibility engineering designs and costs, with the outcome proving it is currently untenable due to high costs and inaccessibility of areas along the pipeline route due to security risks.

4.5.2. Hydrocensus

Alongside the studies conducted in the Northern Groundwater System, a detailed regional hydrocensus was undertaken to develop a comprehensive understanding of community water sources (including uses) and potential environmental receptors.

The types of groundwater sources were identified across the study area included dug wells, boreholes, artesian boreholes and springs/karez. Photographs of these construction types are included in Section 5.11.1 of the ESIA report.

A total of 19 settlements were surveyed (Figure 4-5) and data collected (where possible) included physical details (i.e. location, well type, construction, depth etc.), water levels and field water quality measurements (pH, EC, dissolved oxygen, turbidity and temperature).

4.5.2.1. Settlements near and to the east of the RDMS

These include Humai, Mashki Chah, Nok Chah, Darband Chah and Nok Kundi.

Thirty-five community water supply points were identified across the settlements to the east of the RDMS, where groundwater is typically restricted to discrete shallow alluvial units and deeper fracture zones of limited extent. **There is no known connection to the hydrogeological system at the Project site.**

The measured water levels ranged between 0.3 m and 74 m below ground level (mbgl), (equivalent range between 839 and 1,155 mamsl (metres above mean sea level)) with the water typically neutral (pH ~ 7) and brackish in nature with TDS values ranging between 1,100 mg/L and 5,100 mg/L. The salinity of the groundwater exceeds all water quality standards for drinking water, livestock watering and agriculture and can result in significant health impacts if consumed.

4.5.2.2. Settlements near the Northern Groundwater System

Settlements near the Northern Groundwater System include Kachow, Tang Kachow Bore Chah, Kirtaka, Maki and Beeduk.

There are no settlements within the Northern Groundwater System itself, but there are **several settlements** located in the Mirjawa hills to the south, close to the Iranian border in areas that are **disconnected from the Northern Groundwater System**. A mix of water sources were surveyed including boreholes, springs and karez.

The water levels range between artesian and 115 mbgl, (equivalent range between 473 and 1,296 mamsl), with the water quality is generally slightly alkaline (pH ~ 8), and ranging between fresh and brackish with TDS values between ~400 mg/L and 2,500 mg/L.

4.5.2.3. Settlements to the south of the RDMS near to Hamun-e-Mashkel

These include Patangaz, Rajai, Wadian and Gwalishtap.

Fifty-five community water sources were identified across the region to the south of the RDMS, with levels ranging between artesian and 77 mbgl, (equivalent range between 453 and 980 mamsl). Groundwater is typically moderately alkaline, with pH values in the order of 8-9 with highly variable salinity between fresh (TDS values as low as 500 mg/L) and saline (TDS values over 11,000 mg/L), but mostly brackish in general.

Spring/Karez at Kirtaka

Dug well at SW2– Matthan (Killi Saleem)

Figure 4-4: Selected Photographs of Community Water Sources

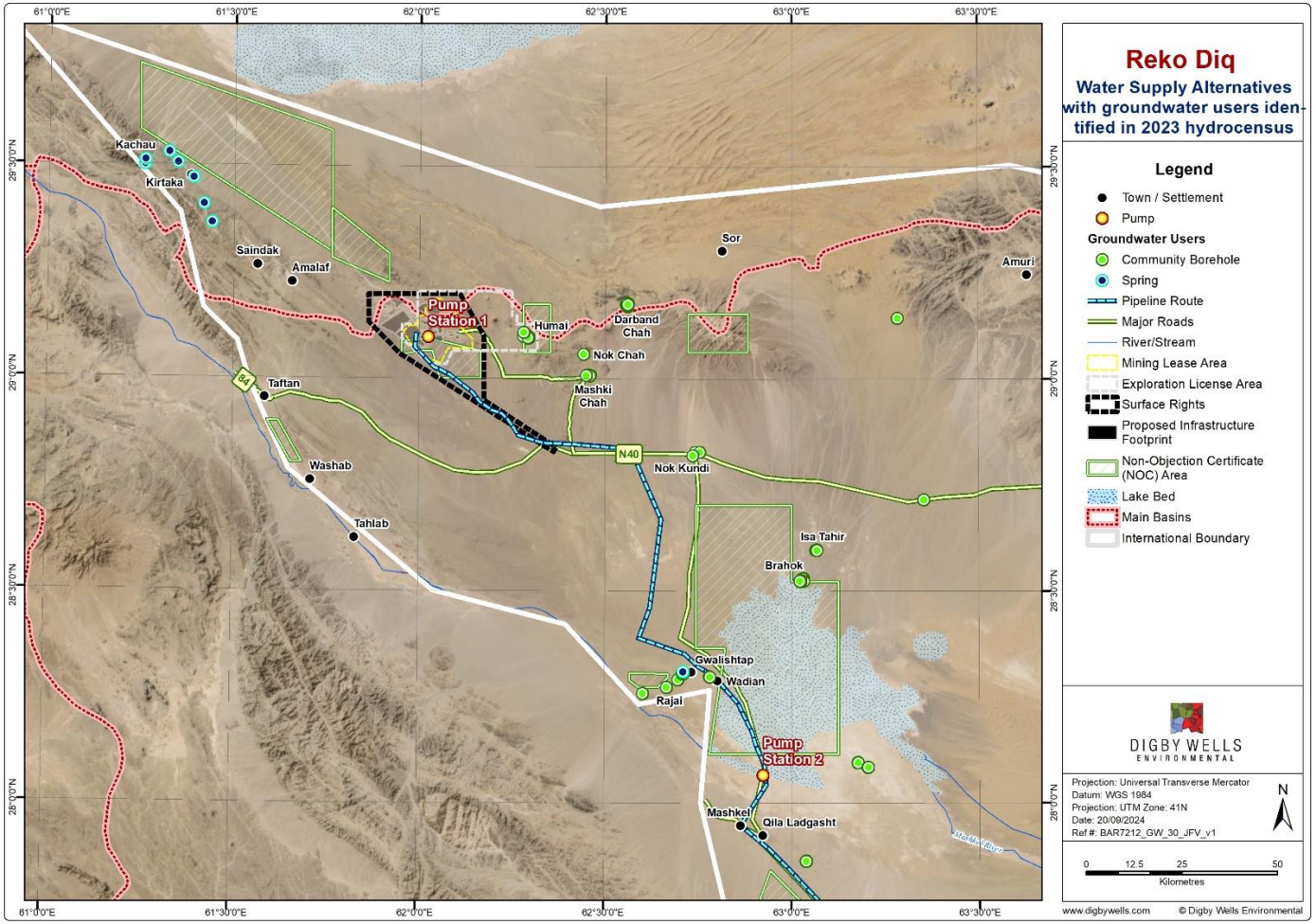

Figure 4-5: Water Supply Sources Alternatives and Community Groundwater Users observed

4.5.3. Northern Groundwater System

Water for the life of the Project will be sourced from the Northern Groundwater System, a sedimentary groundwater system located approximately 70 km to the northwest of the mining area. The system is a small and isolated part of a much larger basin and there are no communities or community water sources located within the proposed borefield and its area of influence.

Water in the system is both challenging to access and saline, and not suitable for human consumption or most agricultural or industrial uses without significant treatment and abstraction infrastructure. There are currently no planned developments or users of the target groundwater system, and the scope of the Project would not preclude future use of the broader basin by others. Independent international best practice environmental and social impact assessment and hydrogeological studies, using physical surveying and remote sensing techniques, have demonstrated that there are no surface expressions of the groundwater system and no known dependent biodiversity.

The technical and economic challenges in utilising this water source for the Project have been addressed. This groundwater system is considered capable of enabling development and sustaining operation of the Project, which is expected to add significantly to the socio-economic advancement and upliftment of the region and country through employment, infrastructure, and services.

The following sections describe the conceptual understanding for this aquifer system and the planned abstraction activities.

4.5.3.1. Geological Setting

The Northern Groundwater System occurs at the southwestern margin of the Sistan Depression, where the aquifer is bound along the southwestern margin by the Tozgi Fault, which marks a sharp contact with the highly deformed Saindak (Eocene) and Juzzak (Palaeocene) Formations, which have been thrust-uplifted to form the Mirjawa Hills.

A second fault, the Drana Koh, representing a possible back-thrust feature striking sub-parallel to the larger Tozgi Fault, at the southern end of the system, is largely covered by the Fan Sediment deposits. Movement along these faults is assumed to be the controlling factor for the local basement geometry and depositional characteristics.

4.5.3.2. Hydrogeology

The hydrogeological conceptualisation with developed using the data from extensive studies carried out in 2009 together with the recent investigations in 2023/2024, and is presented in Figure 4-6 with a description below.

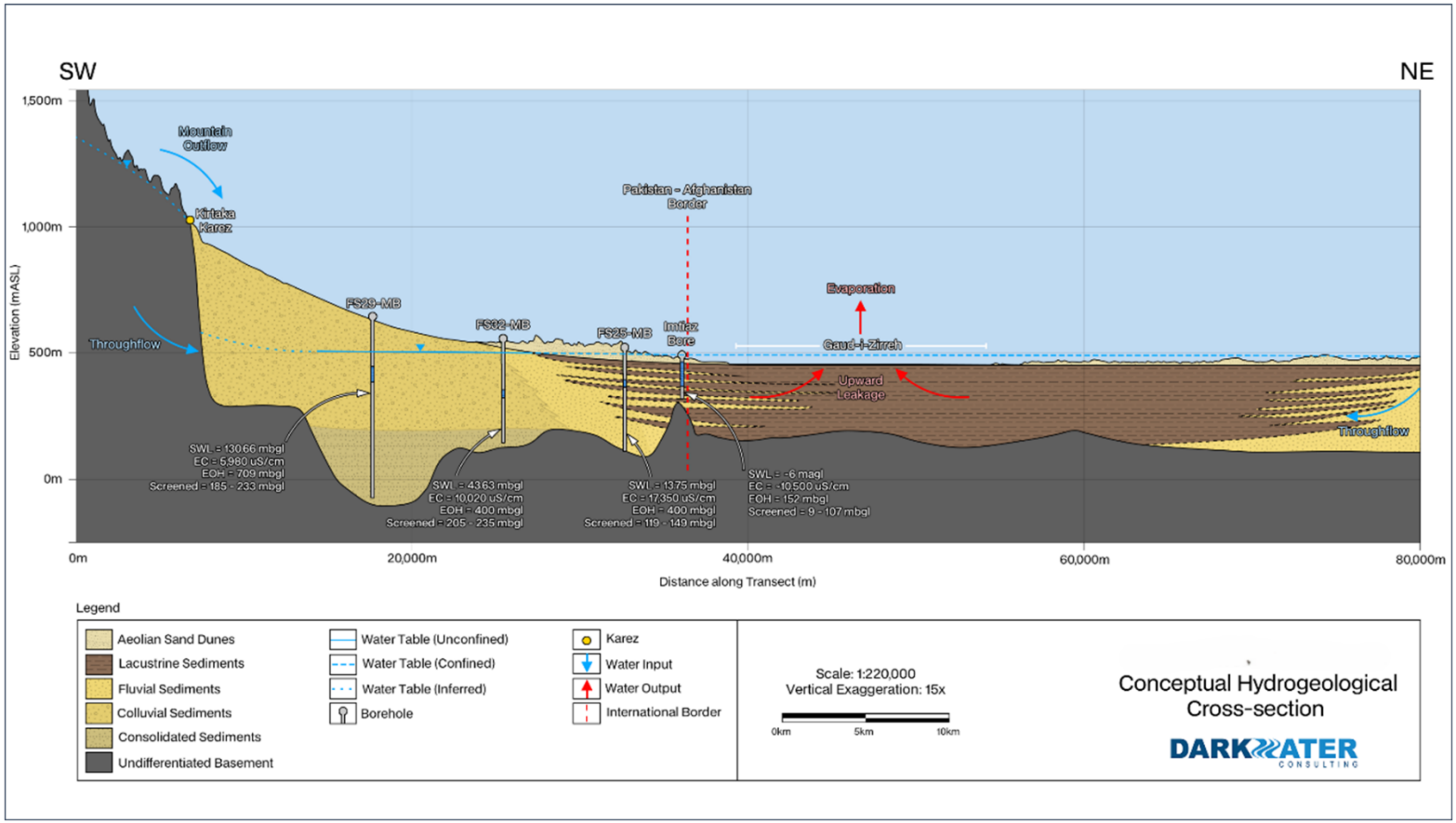

Figure 4-6: Schematic Conceptual Hydrogeological Cross-section for Northern Groundwater Section

4.5.3.2.1. Aquifer Characteristics

The Northern Groundwater System is unconfined within the colluvial fan deposits, transitioning to confined conditions to the northeast beneath the sand dunes, where artesian conditions are observed near the Afghanistan border.

Hydraulic parameters are observed to decrease with depth, and spatially there are four distinct zones of varying hydraulic conductivity (K) and specific yield (Sy) (Figure 4-7), which are applicable to the upper ~300 m of the aquifer. The zones generally correspond to the depositional environments defined in the geological conceptual model, and are as follows:[3]

- **Zone 1,** predominantly fine-grained, shallow deposits south of Sor Baroot: K = 0.001 to 0.1 m/d, Sy = 0.1% to 3%;
- **Zone 2,** transition between Sor Baroot and higher permeability sediments in Zone 3, and the upper reaches of the colluvial fan sediments: K = 0.1 to 1 m/d, Sy = 0.1% to 3%;
- **Zone 3,** an area of higher permeability associated with coarse grained sediments in the lower reaches of the colluvial fan sediments: K = 0.5 to 4 m/d, Sy = 1% to 5%; and
- **Zone 4,** the area to the northeast, beneath the sand dunes and towards Gaud-i-Zirreh, where the proportion of fine sediments increase: K = 0.1 to 1 m/d, Sy = 1% to 5%.

Groundwater recharge is limited given the arid nature of the climate and is thought to occur via a combination of:

- Infiltration of rainfall runoff from sub-catchments in the Mirjawa Hills following high rainfall or spring snow-melt events, contributing episodic recharge along the south-western margin of the system;
- Minor inflows via bedrock along the Mirjawa Hills at the south-western margin of the system; and
- Inflows from the Sor Baroot area, along the south-eastern margin of the system.

4.5.3.2.2. Groundwater Levels and Flow Characteristics

The depth to the water table generally ranges from 50 to 150 mbgl beneath the colluvial fan deposits, depending on the ground surface elevation, shallowing to the north beneath the lower-lying land. Where the aquifer is confined, the potentiometric surface rises above ground level near the Afghanistan border.

[3] K is permeability of the strata, Sy is specific yield which is defined as the volume of water released from storage from an unconfined aquifer

Groundwater elevations within the System (January 2024), range from 533 mamsl in the south, to 496 mamsl in the north, with groundwater flow in a northly and north easterly direction, away from the inferred recharge areas, towards the Afghanistan border.

The 460 m difference in groundwater-level elevation between groundwater expressions in the Mirjawa Hills settlements (>960 mamsl) and the sedimentary groundwater system (~500 mamsl) indicates no direct hydraulic connection between these two groundwater systems.

The flat groundwater gradient across the Northern Groundwater System reflects a groundwater system in steady state, with low recharge rates, relatively high permeability, and no notable anthropogenic abstraction.

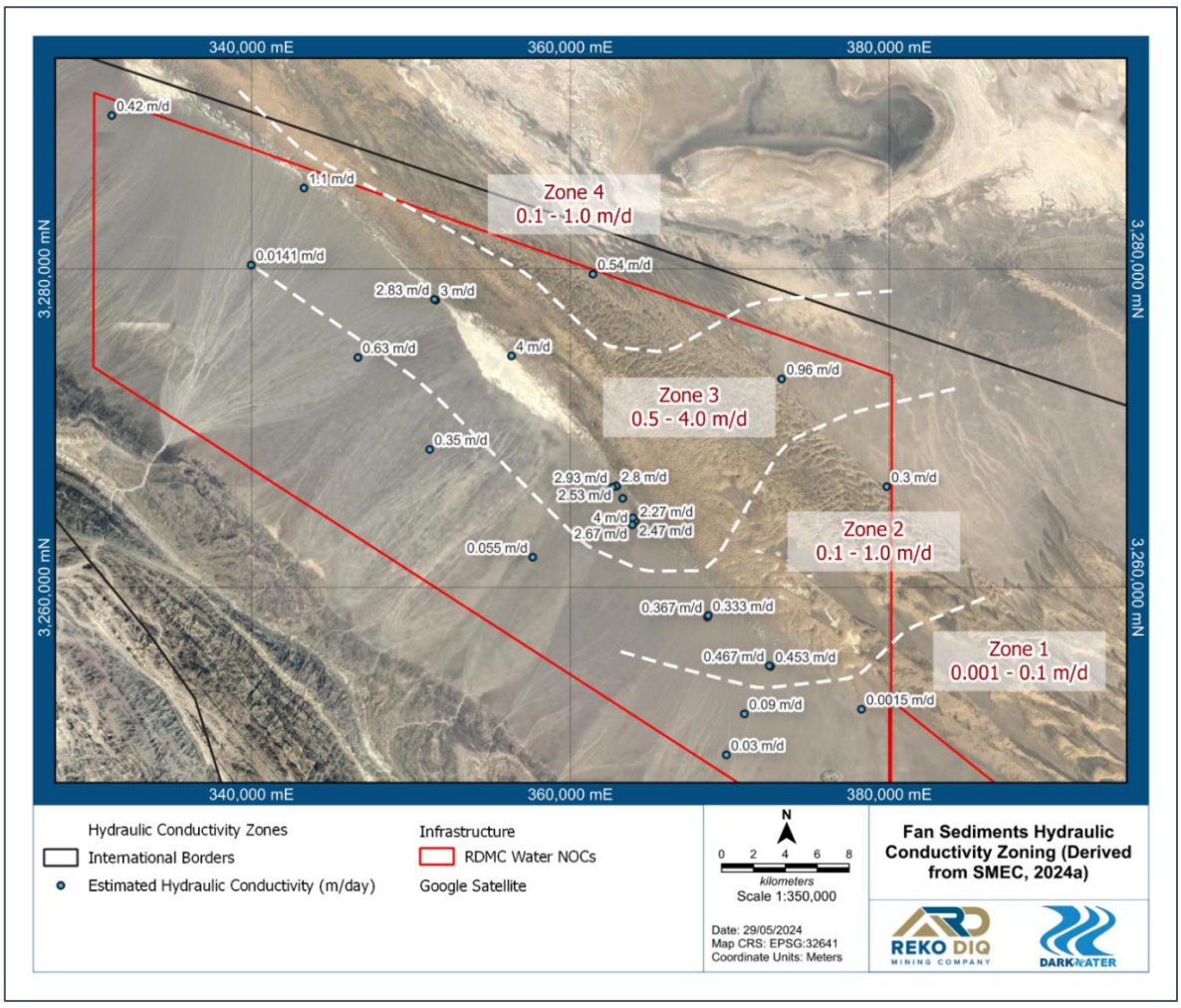

Figure 4-7: Hydraulic Conductivity Zoning

4.5.3.2.3. Groundwater Quality

Water quality is moderately to highly saline and not considered potable, with field EC ranging from 3,990 µS/cm to 25,000 µS/cm, where groundwater salinity generally increases from the west to the east, and higher groundwater salinity is also present in the south near

Sor Baroot (Figure 4-8), where groundwater occurs in finer-grained sediments, or weathered bedrock, and flow is likely inhibited.

Groundwater sampled is generally of a sodium-chloride type, with the proportion of chloride tending to increase with distance from the Mirjawa Hills towards the Afghanistan border. Groundwater sampled in the hills consistently has a higher proportion of bicarbonate, likely reflecting greater recharge and/or a different aquifer lithology.

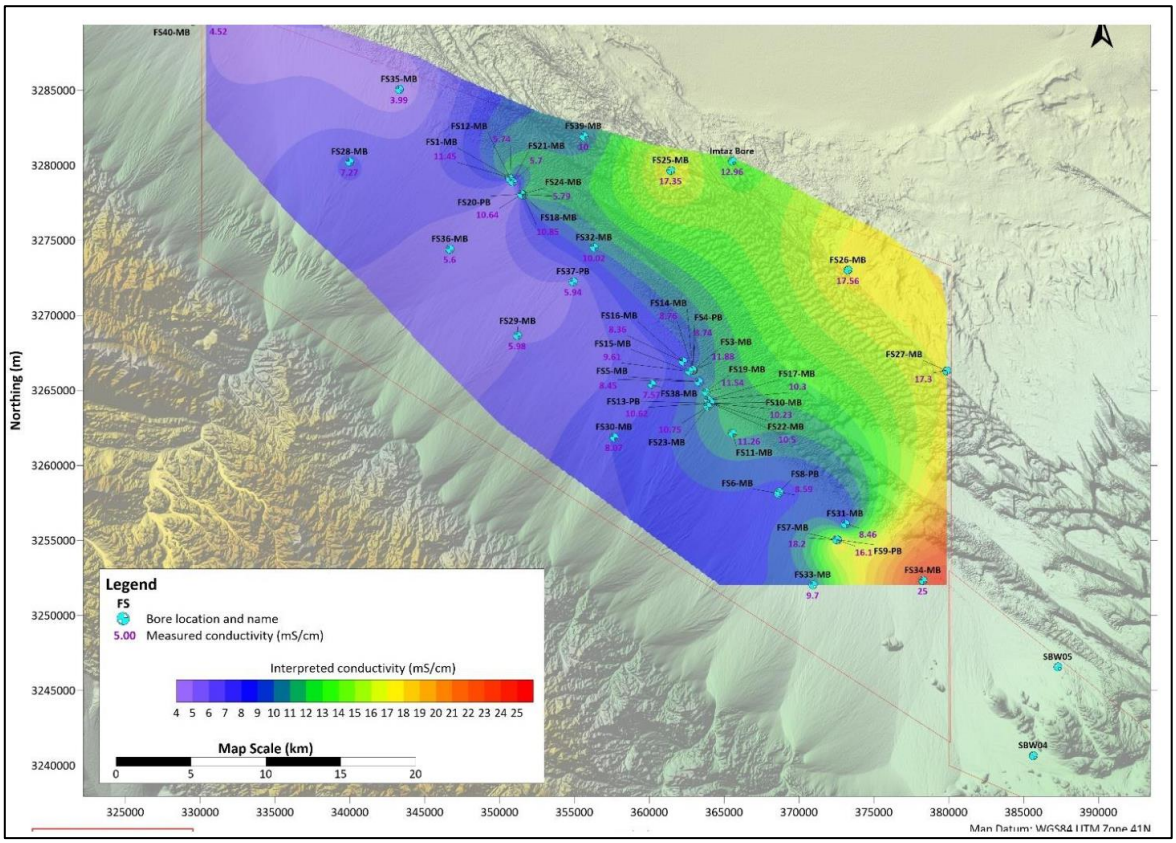

Figure 4-8: Groundwater Salinity from Field EC Measurements, February 2024

4.5.3.2.4. Aquifer Interconnection

While the regional extent of the sediments, hydraulic interconnection and aquifer characteristics in neighbouring countries are unknown, some limitation and inferences can be made:

- The colluvial fan sediments extend along the foot of the Mirjawa Hills to the northwest into neighbouring Afghanistan and Iran. The total depth of the sediments to the north is unknown, and so possible hydraulic boundaries arising from structural features such as faults or shallow basement cannot be assessed.
- The Northern Groundwater System may be hydraulically connected with the sediments underlying Gaud-i-Zirreh, however these are likely to be fine-grained in nature, and if present, significant aquifer layers likely occurring at depth.

- Interconnection with Gaud-i-Zirreh is unlikely to have a significant influence on the surface water characteristics at the location, as groundwater leakage is insufficient to sustain a surface water body. It is possible that more saline groundwater from beneath the playa lake system could be drawn to the proposed borefield over time.
- The Northern Groundwater System is disconnected from the groundwater system accessed by nearby settlements in the Mirjawa Hills.
- An irrigation district, Lavar Ab / Rig Chah, has been identified in Iran, approximately 50 km to 70 km to the northwest of the proposed borefield area, which may be utilising groundwater from colluvial fan deposits at that location. The degree of hydraulic interconnection along the fan sediments aquifer system is unknown, although it is unlikely to be significant over the large distance involved.

4.5.3.3. Groundwater Modelling

To predict the possible extents of aquifer drawdown resulting from the abstraction of the LoM water supply requirements, a numerical groundwater model was developed by Groundwater Consulting Pty Ltd (2024) with Darkwater Consultants Pty Ltd (Darkwater, 2024b) using very conservative assumptions and a stochastic approach endorsed by the Groundwater Modelling Decision Support Initiative (GMDSI). The GMDSI models simulate hundreds if not thousands of combinations of aquifer parameters and properties, providing a range of possible outcomes. The GMDSI approach is very useful when uncertainties in model predictions are high.

The objective of this modelling was to assess the ability of the Norther Groundwater System to meet the project water demand, and to evaluate the potential range of drawdown over time resulting from this abstraction.

The numerical model, constructed in January 2024, was simulated as a four-layer, unconfined to confined aquifer contained within unconsolidated sediments, overlain by a confining clay-layer in the northeast, and underlain by impervious basement or consolidated sedimentary rock.

A total of 142 models, sufficiently calibrated to steady-state water levels, were assessed with results indicating that the Northern Groundwater System was able to sustain the Project water demands for the life of the Project. Hydraulic head distributions from these runs were used to produce probabilistic drawdown outputs for impact assessment purposes. The spatial distribution of drawdown at the end of the Project (assuming total Project water supplies are abstracted) at a P50 probability (50^{th} percentile (mean) drawdown value at each cell across the 142 model runs) is provided in Figure 4-9.

4.5.4. Conclusion

The extensive independent studies carried out to investigate the feasibility of the Northern Groundwater System have followed international best-practice and demonstrate that the aquifer system can cost effectively provide the water supply requirements for the LoM of the Project cost effectively.

The impact assessment conducted as part of the ESIA confirms that there are no environmental or social receptors in the Northern Groundwater System. The assessment which included physical surveys and remote sensing techniques, has also demonstrated that there are no surface expressions of the groundwater system and no dependent biodiversity.

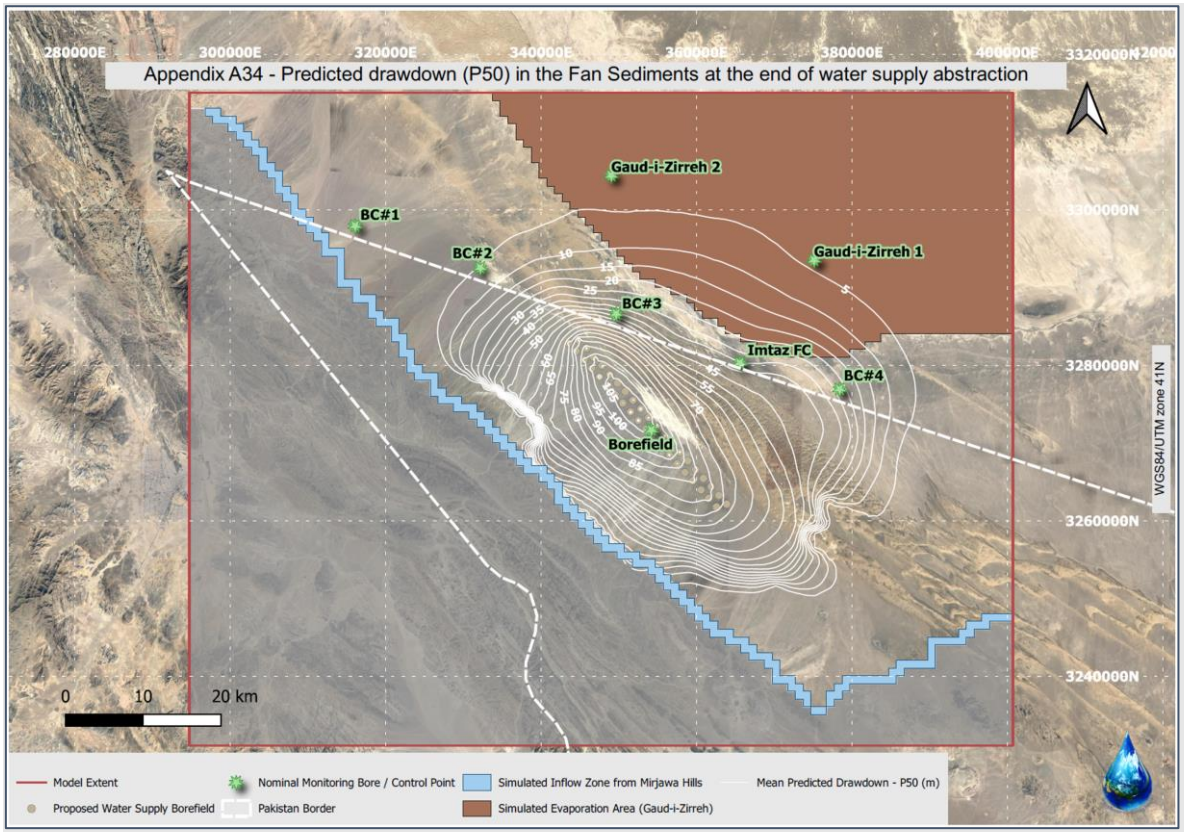

Figure 4-9: Predicted P50 Drawdown in the Northern Groundwater System at the End of Abstraction (Darkwater, 2024b)

The extensive hydrocensus together with detailed hydrogeological modelling has confirmed that there are no communities/ groundwater users located within the vicinity of the Northern Groundwater System.

Water in the system is moderately to highly saline and challenging to access. As such, it is not suitable for human consumption or most agricultural or industrial uses without significant treatment and abstraction infrastructure.

There are currently no planned developments or nearby users of the target groundwater system, and although numerical groundwater modelling does show significant drawdown of water levels over time as a result of abstraction, the scope of the Project does not preclude future use of the broader basin by others.

While there are no environmental or social receptors within the predicted area of drawdown, the observed groundwater flows towards the Afghanistan border. This introduces potential transboundary drawdown impacts, which will need to be managed during operation of the Northern Borefield.

Although the Northern Groundwater System has shown to be a viable option for the total water supply requirements for the life of the Project, RDMC will continue to explore the remaining NOC permit areas, in order of priority. This, together with the regular re-evaluation of the seawater desalination plant and pipeline to the Project mine site, will allow for the supplementation of the future water supply as required.

4.5.5. Mine Site Hydrogeology

Groundwater within the mine area is generally hosted in isolated pockets of fractured rock, and interconnection with the regional aquifer systems is inferred to be minimal, with no significant groundwater resources reported in the mining area.

The area is underlain by a thin cover of Quaternary gravels and aeolian sands unconformably overlying volcanic and sedimentary units of the Humai, Juzzak and Reko Diq formations, with Miocene-age porphyry intrusions outcropping in the area. The sedimentary and volcanic units are sub-horizontal with minor tilt to the southwest; they are cut by near vertical intrusives. A schematic southwest-northeast cross section through the Western Porphyry deposit is provided in Figure 4-10.

The Reko Diq Formation extends to ~400 m depth and comprises thick sequences of fine to medium grained porphyritic andesitic laver flows interbedded with autoclastic volcanic breccia and pyroclastic debris.

The area is crossed with numerous SW-NE, NW-SE trending structures, including several regional-scale faults. Linear fractures tend to be infilled with secondary mineralisation. Assessments of the piezometric surface between the porphyry and surrounding country rock indicates a lack of hydraulic connection.

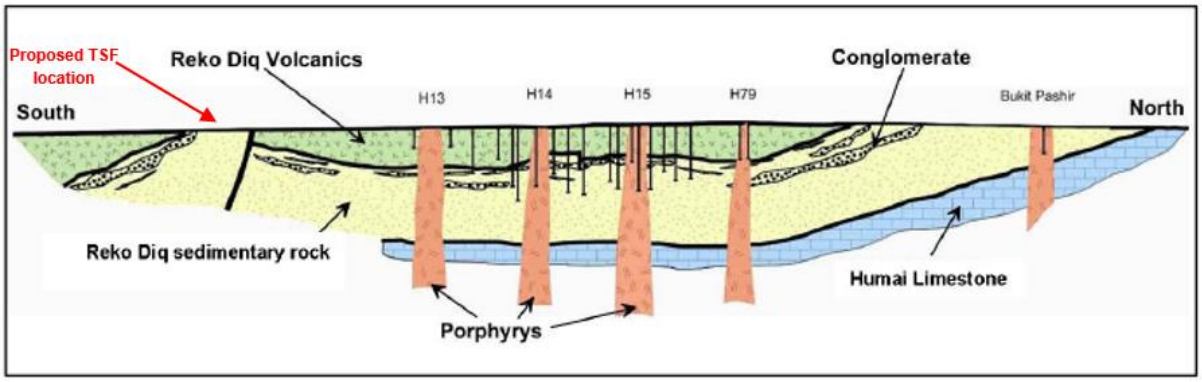

Figure 4-10: Schematic Geological Cross Section through the Western Porphyry

4.5.5.1. Groundwater Levels and Flow Directions

Groundwater elevation at the mine site ranges from around 870 mamsl at the proposed TSF location to around 920 mamsl in the proposed pit areas. Regional groundwater flow at the mine site generally follows the regional topography, with groundwater north of the water divide flowing north-west towards Gaud-i-Zirreh and groundwater south of the water divide flowing south-east towards Hamun-i-Mashkhel.

Locally, where adequate hydraulic connection occurs, groundwater flow directions might deviate depending on the orientation and permeability of the shallow bedrock and local structures.

In the proposed pit areas, average groundwater levels are around 60 mbgl, compared to an average mine-lease depth to water of 22.5 mbgl. Comparison between groundwater levels measured in 2023 to 2024 and those measured between 2004 to 2011 show little to no change in groundwater levels over this time. These water levels are associated with the limited fractured aquifer system described above.

The proposed TSF is located approximately 5 to 10 km west of the pits on a gravel plain. Groundwater levels at this location range between 4.8 and 23.1 mbgl, with average depth to water around 15 mbgl, significantly shallower than in the pit areas. The nature of the groundwater system in this area is unclear but water quality results suggest it is localised within weathered bedrock.

4.5.5.2. Groundwater Recharge and Discharge

Groundwater recharge at the site is via direct rainfall infiltration and infiltration of rainfall runoff following significant rainfall events. Given the very low average precipitation rates (32.3 mm/a) and very high annual evaporation rate (2,800 mm), recharge from rainfall is expected to be insignificant most years. An average recharge rate of 0.42 mm/a, or 1.8% of the average annual rainfall, has been estimated for the Project site.

Once mining commences, infiltration of seepage from the TSF is expected to contribute to groundwater recharge. There are no known groundwater discharge sites, or groundwater users in the immediate mine-site area.

4.5.5.3. Natural Groundwater Quality

The natural groundwater is highly saline in nature with TDS in the Project area typically more than 10,000 mg/L, making it unsuitable for human consumption, livestock watering or agriculture nor is it used in these ways:

- In the TSF area, the TDS ranges between 15,600 mg/L and 180,000 mg/L with an average of 43,400 mg/L.
- At the Western Porphyry and Tanjeel deposits, the concentration is slightly better at 11,500 mg/L and 16,600 mg/L.
- In the vicinity of the northern WRD, it is 16,000 mg/L.

The main constituents contributing to the high TDS are sodium and chloride, which is typical of groundwater that has had a long residence time within an aquifer and receives little to no recharge.

The pH of the groundwater is neutral except at Tanjeel where it ranges between 3.2 and 3.7 due to the supergene depositional environment of the orebody, where sulphide minerals are oxidised in the process.

4.5.6. Geochemical Analysis

The typical impact assessment methodology does not directly apply to geochemical aspects. The distinction arises because the geochemical assessment is primarily concerned with characterising the source of potential contaminants, rather than the pathway or receptor involved in the environmental impact (see Section 6.4.4 of the ESIA report).

Despite this differentiation in approach, geochemical studies identify potential geochemical risks and recommend mitigation and management measures. The recommendations are important in informing the development of the environmental management plan and monitoring program ensuring the protection and preservation of the environment.

4.5.6.1. Pit and Waste Rock Dump

Acidic metal drainage will occur within the Western Porphyry pit and waste rock dump. However, due to the encapsulated nature of sulphides at Western Porphyry, this process will take decades, especially in the low humidity and high evaporation environment. The depth to groundwater, groundwater chemistry, and low reactivity of the material will further limit the potential for Acid Rock Drainage and Metal Leaching (ARDML) to impact this site.

At Tanjeel, the more oxidised nature of the material and greater exposure of sulphides in the pit wall result in a higher potential for acid generation. Additionally, groundwater flows through the same fractures as the mineralisation, leading to partial in-situ oxidation. This makes the material more reactive, however due to the extremely low predicted infiltration rates from hydrogeological modelling, the depth to groundwater across the site, there is little potential for ARDML to impact the groundwater. Additionally, there are no groundwater receptors at risk at this site. However, the levels of acidity, total dissolved solids, sulphate, aluminium, antimony, barium, cadmium, cerium, cobalt, copper, iron, manganese, lead, scandium, strontium and zinc, identified as potential constituents of concern, should be monitored in the surface water (when it occurs) and groundwater at the sites Tailings Storage Facility

The geochemical characteristics of the tailings are variable depending on the fraction of the tailings.

4.5.6.1.1. Rougher Tailings

The rougher tailings typically contain less than 0.5% sulphide, resulting in negligible acid-generating potential and classified as inert. Leachable metal concentrations are generally below comparative water quality and risk assessment guideline values. Sulphate values are typically below 500mg/L, and the pH ranges from mildly acidic to circumneutral (around pH 6).

The potential for environmental impacts to groundwater from rougher tailings is low due to extremely low infiltration rates predicted by hydrogeological modelling, the depth of groundwater across the site, and the highly mineralised, saline nature of the groundwater. Additionally, there are no groundwater receptors at risk at this site. Therefore, a liner is not necessary for the deposition of these tailings, and no specific ARDML management measures are required.

4.5.6.1.2. Cleaner Tailings

Cleaner tailings, which contain between 6% and 23% sulphide, have a high potential for acid generation and are characterised by leachable metal concentrations that exceed comparative water quality and risk assessment guidelines. Additionally, these tailings exhibit very high Sulphate concentrations (over 2 g/L) and a low leachate pH (around pH 2).

Natural weathering of these tailings will produce acidic drainage, with concerning constituents including low pH, high electrical conductivity, sulphate, copper, lead, manganese, molybdenum, strontium, and uranium. These substances may be mobilised during operations and could impact groundwater quality. Therefore, installing an impermeable HDPE (High-Density Polyethylene) liner (as currently planned) is recommended to control and manage seepage from the TSF.

4.5.6.2. Conclusion

While there may be material that is Potentially Acid Generating, the underlying fractured aquifer is limited in its extent and there are no local environmental receptors and the nearest community is located 20km away, therefore there will be no impacts from the TSF or pit area.

4.6. Biodiversity

Biodiversity (Flora and Fauna) Assessments were undertaken to determine the baseline conditions. Both a desktop assessment including the data collected for the 2010 ESIA and 2020 ESIA, and two seasonal surveys were undertaken in September 2022 and October 2023 (Post-Monsoon season) and April 2023 (Spring season) to inform the baseline. The assessments studied aspects such as habitat classification, protected areas, flora, and fauna. The fauna surveys considered birds, mammals, herpetofauna, invertebrates, and marine fauna and the flora surveys covered terrestrial vegetation and mangroves.

The spatial extent of the ecological surveys, consisting of flora and fauna, extended over the Balochistan and Sindh provinces and covered a 10 km buffer around the RDMS, the Northern Groundwater System and Access Road to the Mine Site as well as a 10 km buffer into the creeks and mangrove areas at Port Qasim. A 100 m buffer along the existing Rail Transport Route, Rail Yard, and Access Road to the PIBT at Port Qasim.

Ecological studies were not carried out for the Rail Transport Route as the biodiversity along the main railway line has already been impacted over time, and the impacts of the additional Project traffic are expected to be negligible.

Desktop assessments included information from both published sources and different databases including, amongst others, International Union for Conservation of Nature (IUCN), Global Invasive Species Database, Key Biodiversity Areas, Integrated Biodiversity Assessment Tool (IBAT), Reptile Database, Avibase, Animal Diversity Web, eFlora of Pakistan and Previous ESIA studies.

4.6.1. Protected Areas

There are no protected areas within the immediate vicinity of the RDMS and the Project associated facilities. The nearest protected areas include the Ras Koh Important Bird Area (IBA), Kamran Wildlife Sanctuary, and Zangi Nawar Game Reserve which are located more than 250 km from the mine site. The nearest protected areas near the Port Qasim Marine and Coastal Area include the Hub Dam and Mahro Kohri wildlife sanctuaries which are located more than 200 km from Port Qasim.

4.6.2. Habitat Classification

Various habitat types including Mountain/Hills and Clayey Plains, Dry Streambeds, Gravel Plains and Sandy Plains/Sand Dunes are present at the proposed RDMS and the project related infrastructure. The dominant habitat type is Gravel Plains (53.8%) followed by Mountains/Hills (24.7%).

The terrestrial habitats at Port Qasim are highly modified; the dominant habitat is vegetation clusters consisting of alien invasive mesquite which has spread in the coastal area following construction of infrastructure and removal of indigenous vegetation over time. The remaining land is occupied by industrial units, roads, and other infrastructure, with some land and demarcated industrial plots that are unutilised. The aquatic habitats at the marine terminal are defined as either creeks (including dredged shipping channels) or mangroves.

4.6.3. Flora

Ecological sampling was conducted in various habitat types to assess the ecological conditions unique to each habitat. The key findings of the floral surveys are highlighted below. Detailed lists of all the plant species identified during the field surveys at the RDMS and other project related facilities are available in Section 5.9.2 of the ESIA report.

- **RDMS and Related Infrastructure**
  - Twenty (20) locations at the RDMS, 13 locations in the Northern Groundwater System area, and eight locations along the access road to the mine site.
  - Based on the literature review, the RDMS and associated facilities study area hosts 52 plant species, of which 41 were observed during field surveys.
  - The flora in the RDMS and associated facilities is predominantly xeric, adapted to the arid desert environment and limited water availability. These xeric species exhibit wide distribution across the region, with no species listed as threatened under the IUCN Red List of Threatened Species, nor do they exhibit restricted ranges. No Alien Invasive Species was observed during field surveys at RDMS and related infrastructure.
  - **No species of conservation concern have been identified within the study area**. All species reported by IBAT are listed as either Least Concern or Data Deficient according to the IUCN Red List of Threatened Species. The National

Red List is not available for flora in Pakistan and therefore the national status is not provided for the plant species.

- **Port Qasim (Terrestrial and Marine)**
  - Three locations for terrestrial and seven sampling locations for mangrove assessment at Port Qasim.
  - A total of 18 terrestrial plant species were observed at three sampling locations. During the survey, one Alien plant species, Cotton of Seldom (*Calotropis procera*), and two Alien-Invasive plant species, Giant Reed (*Arundo donax*) and Mesquite (*Prosopis juliflora*) were observed. One species of conservation concern was observed at Port Qasim, namely Lanceleaf Buttonwood (*Conocarpus lancifolius*), which is listed as Near Threatened. This is not a native species and therefore does not raise conservation concerns within Pakistan. The National Red List is not available for flora in Pakistan so national status is not provided for the plant species.
  - A total of 24 specimens belonging to two species of mangroves were observed at Port Qasim.

4.6.4. Fauna

Data was collected for the terrestrial (birds, mammals, herpetofauna, and invertebrates) and marine and coastal (Marine Benthic Invertebrates (MBIs), Epi Pelagic Fauna, and Pelagic Fish Communities) ecological resources. Fauna species during the baseline surveys at RDMS and associated infrastructure (terrestrial fauna) and at Port Qasim (terrestrial and marine and coastal fauna) are available in Section 5.9.3 of the ESIA report. The key findings with respect to conservation status (IUCN Red List of Threatened Species) are as follows:

- **Avifauna:** 17 bird species were observed at RDMS, 31 within the Northern Groundwater System area, 10 along the Access Route to the mine site and 40 at Port Qasim. **No species of conservation concern was observed within the RDMS area during the baseline surveys.** Three conservation concern bird species were observed during the baseline survey. Two of these were observed in the Northern Groundwater System area; the Endangered Egyptian Vulture (*Neophron percnopterus*), and the Vulnerable Asian Houbara Bustard (*Chlamydotis macqueenii*) and the third species at Port Qasim; the Near Threatened Curlew Sandpiper (*Calidris ferruginea*).
- **Mammals:** Seven mammalian species were observed within the RDMS, six within the Northern Groundwater System Area and seven at Port Qasim. The Goitered Gazelle (*Gazella subgutturosa*), observed in the Northern Groundwater System area, is listed as Vulnerable according to the IUCN and Critically Endangered according to the Pakistan Mammal Red List. Species observed both in the RDMS and the Northern Groundwater System area which are considered species of conservation concern according to the Pakistan Mammal Red List (but not the IUCN Red List) are:

the Critically Endangered Sand Cat (*Felis margarita*), Vulnerable Cape Hare (*Lepus capensis*) and Ruppell's Fox (*Vulpes rueppellii*) and the Near Threatened Red Fox (*Vulpes vulpes*).

- **Small Mammals:** Only one small mammal species, the Great Gerbil (*Rhombomys opimus*), which is listed as Least Concern was observed at RDMS and Northern Groundwater System during the baseline surveys. Sampling was not conducted for small mammals at Port Qasim.
- **Volant Mammal**s: A total of five bat species have been reported across the RDMS; namely Greater Horseshoe Bat (*Rhinolophus ferrumequinum*), Leaf-nosed Bat (*Hipposideros cineraceus*), Kuhl's Pipistrelle (*Pipistrellus kuhlii*), Notch-eared Bat (*Myotis emarginatus*) and Persian Serotine (*Eptesicus nasutus*). Specific surveys for bats are ongoing, with findings to date identifying only species of least concern in areas away from the Project area.
- **Herpetofauna:** Ten (10) herpetofauna species were observed at RDMS, five along the Access Route to the mine and 11 in the Northern Groundwater System Area. A total of four herpetofauna species were observed at Port Qasim in the baseline survey. All but one of these species are listed as Least Concern or Data Deficient. There was **one restricted-range species, the Chagai Toad-headed Agama** (*Phrynocephalus euptilopus*) observed within the Northern Groundwater System Area during the baseline surveys. One was observed during the initial survey, with a further two observed during follow up surveys in August 2024.
- **Invertebrates:** Five species were observed at RDMS, seven along the Northern Groundwater System Area, and four along the Access Route to the RDMS. Sampling for invertebrates was not conducted at Port Qasim. All species are listed as Least Concern or Data Deficient.
- **MBIs:** Nine MBI species were observed at Port Qasim. All species are listed as Least Concern or Data Deficient.
- **Epi Pelagic Fauna:** Nine epi-pelagic species were observed at Port Qasim. All species are listed as Least Concern or Data Deficient.
- **Pelagic Fish:** Eight pelagic fish species were observed at Port Qasim. Two fish species, namely the Shortfin Mako (*Isurus oxyrinchus*) and Sliver Pomfret (*Pampus argenteus*), reported in the literature review, are listed as Endangered and Vulnerable, respectively.

4.6.5. Critical Habitat Assessment

A Critical Habitat Assessment (CHA) was undertaken as per the IFC PS6, to determine if the Project is either located within, or could impact on, any Critical Habitat. The CHA included the RDMS and associated facilities, as well as Port Qasim. The CHA is designed to identify Natural, Modified, and Critical Habitats within the project areas and outlines necessary mitigation measures to address any potential impacts on biodiversity.

- **Natural Habitats** are defined as areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition.
- **Modified Habitats** are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition. Modified habitats may include areas managed for agriculture, forest plantations, reclaimed coastal zones, and reclaimed wetlands.
- **Critical Habitats** are areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes.

4.6.5.1. Determination of Natural and Critical Habitat

The Project area is located in an intact habitat with scattered vegetation patches, attributed to natural desert conditions. There are low level disturbances in terms of routes for cross-border trade, camps for security agencies and project-related camps.

Within the Study Area approximately 0.1 km^2 is Agricultural Area/Date Palms habitat, and 0.4 km^2 area covers Built-up Areas and these are referred to as Modified Habitat as per the IFC definition. The remaining habitats including Clayey Plains, Dry Streambeds, Gravel Plains, Mountains/Hills and Sandy Plains/Sand Dunes are Natural Habitats and cover 3,274 km^2 of the Study Area.

Additionally, according to the United Nations Environmental Programme: World Conservation Monitoring Centre's (UNEP-WCMC) screening layers, most of the Study Area is Likely Natural habitat (75.4%) followed by Potential Natural (10.6%), Potential Modified (12.4%) and Likely Modified (1.5%). Habitat determination within the Ecological Study Area and within the RDMS is available in Section 6.2.1.4.3 of the ESIA report.

4.6.5.1.1. CHA Findings

The IFC PS6 criteria used to identify areas of high biodiversity value that may be impacted by the Project activities are:

- **Criterion 1:** Habitat of significant importance to Critically Endangered and/or Endangered species.
- **Criterion 2:** Habitat of significant importance to endemic and/or restricted-range species.
- **Criterion 3:** Habitat supporting globally significant concentrations of migratory species and/or congregatory species.

- **Criterion 4:** Highly threatened and/or unique ecosystems.
- **Criterion 5:** Areas with unique assemblages of species or which are associated with key evolutionary processes.
- **Criterion 6**: Areas meeting the criteria of the IUCN's Protected Area Categories of Strict Nature Reserve (Ia), Wilderness Area (Ib), and National Park (II) categories.

4.6.5.1.1.1. Reko Diq Mine Site and Associated Facilities:

The habitat at the Reko Diq Mine Site and associated facilities is classified as Natural Habitat with scattered vegetation and low to moderate disturbances.

The CHA identified the presence of several species of conservation concern including the Egyptian Vulture (*Neophron percnopterus*) listed as Endangered, and the Asian Houbara Bustard (*Chlamydotis macqueenii*), Goitered Gazelle (*Gazella subgutturosa*), and Afghan Urial (*Ovis vignei cycloceros*) listed as Vulnerable; none of these species trigger Critical Habitat criteria.

However, the **restricted-range Alcock's Toad-Headed Agama** (*Phrynocephalus euptilopus*) triggers the Critical Habitat under Criterion 2 of IFC PS6. This species is primarily found in the Northern Groundwater System area, which is outside of the immediate mine area but within the broader project range. Given there is limited data on the presence and specific habitat of this species in the Chagai region, RDMC have applied the precautionary principle and defined the RDMS and associated facilities areas as **Critical Habitat**. RDMC will develop a Biodiversity Management Plan which will include appropriate mitigation measures to address potential impacts.

Given the limited knowledge of this species in the region, RDMC will carry out ongoing surveys as part of their Biodiversity Action Plan (BAP), to contribute to this knowledge base.

4.6.5.1.1.2. Port Qasim

The CHA identified several species of conservation concern including marine pelagic fish, and migratory birds' species as well as mangrove ecosystems. No species met the criteria to trigger the Critical Habitat. However, the presence of unique mangrove ecosystem, triggers the Critical Habitat under Criterion 4 of IFC PS6 (although no direct impact on mangroves is anticipated from the project activities at PIBT).

4.6.6. Impact Assessment

The baseline data together with the project activities were evaluated as part of the Impact Assessment and the biodiversity impacts identified and assessed for the Project are detailed below with a brief description of each impact. The detailed assessment of the impacts is available in Chapter 6 of the ESIA report.

4.6.6.1. Impact 11: Terrestrial Habitat Loss due to Land Disturbance

Site clearance and construction of Project infrastructure will result in the loss of approximately 134 km^2 of habitat which will lead to the loss of plants and displacement of animals in the area, with permanent modification of land within the Project footprint.

All terrestrial flora observed during the surveys within the RDMS are categorised as either Least Concern or Not Evaluated according to the IUCN Red List of Threatened Species. There are no protected areas near the Reko Diq Mine Site.

The impact is major (negative), as the habitat within the footprint will be lost due to Project activities and will primarily affect vegetation in the area as well as herpetofauna and small mammals, while the more mobile large mammals and birds are likely to move away and be less affected. The significance of this impact is reduced to moderate (negative) with mitigation measured implemented.

4.6.6.2. Impact 12: Impacts on Abundance and Diversity of Terrestrial Flora and Fauna

The Project activities pose potential threats to conservation concern species such as the Lesser Whitethroat, Sand Cat, and Red Fox through habitat disturbance, noise, and illumination. These factors can lead to a reduction in the abundance of these species.

- The Lesser Whitethroat (Sylvia curruca) is listed in Appendix III of CITES and was observed during both the Post-Monsoon 2022 and Spring 2023 surveys. It is not currently threatened globally however, it may face pressures in specific regions. The species' listings in Appen) and Red Fox (Vulpes vulpes) are listed in Appendix II and III of CITES, respectively.

The Project facilities are mostly located in the Gravel Plain habitat type where the dominant plant species are *Haloxylon spp*. and *Calligonum spp,* both of which are common and abundant in the wider area. The habitat loss caused by the construction of Project infrastructure will not have any significant impact on the overall population of these vegetation species, even though individual plants will be removed.

The Project-related activities will result in a change in the abundance and diversity of flora and fauna in the area, which is predicted to result in a moderate (negative) impact. Small mammals and herpetofauna are likely to be most affected while large mammals and birds will be less affected by these disturbances as they will be able to move to undisturbed areas. The significance of this impact is anticipated to be minor (negative) after implementation of the proposed mitigation measures.

4.6.6.3. Impact 13: Impacts to Critical Habitat

The Alcock's Toad-Headed Agama (*Phrynocephalus euptilopus*) is currently classified as restricted range due to extremely limited data and understanding of the species. The Project has taken a precautionary view and assumed that this species could trigger Critical Habitat under the Criterion 2 of IFC PS6.

A BAP may be required based on careful planning and implementation to mitigate environmental impacts and ensure compliance with international standards. The BAP will identify key biodiversity features, which will at this stage include the habitat of the Alcock's Toad-headed Agama. With the limited understanding of this species, a particular focus in the short term will be to apply increased survey and research efforts to improve the understanding and ensure conservation. RDMC will undertake additional surveys to cater impact to critical habitat as mentioned in Section 4.6.7 of this Executive Summary.

RDMC will utilise the newly developed Barrick biodiversity measurement tool which was developed with the support of third-party experts and with the aim of going beyond global data layers and define a methodology to help establish consistent baselines, identify residual impacts, set Key Performance Indicators for no net loss and consistently measure the positive contributions to add value to the business, local communities, and to the shareholders who ask for this information.

For Port Qasim, the unique mangrove ecosystem qualifies as Critical Habitat, but the Project is not expected to disturb these habitats.

4.6.6.4. Impact 14: Introduction and Spread of Alien Invasive Species

The Project activities at the RDMS pose a potential threat for the introduction of Alien Invasive Species (AIS) as a result of vehicular movement, where species can be transported on to site, unintentionally. There is a potential risk of the introduction of the *Prosopis spp*. and hydrophilic *Arundo donax,* species that are known to occur in the surrounding areas and are able to survive in the harsh environmental conditions in the region. *Prosopis spp*. was introduced in Pakistan for sand dune stabilisation, especially in the desert environment; once introduced in an area, it outcompetes the native flora at an accelerated rate.

4.6.7. Ongoing and Future Surveys Planned

Despite the extensive survey data collected, some uncertainties remain as a result of some limitations to survey efforts due to security concerns (i.e. no surveying or sampling could be completed at night) and restriction of access to certain areas. These are being addressed through ongoing surveys, which will provide additional information for biodiversity management planning purposes. Ongoing surveys include:

- Further assessment of the likelihood of migratory bird nesting, feeding or resting in or near to the project area;
- Additional surveys for small mammals, herpetofauna and flora across an expanded geographical area as far east as Nushki (see Figure 4-11 and Figure 4-12);
- Additional camera trapping in and around the Project area;
- Additional nighttime surveys in and around the Project area; and
- Specific surveys for volant mammals (bats).

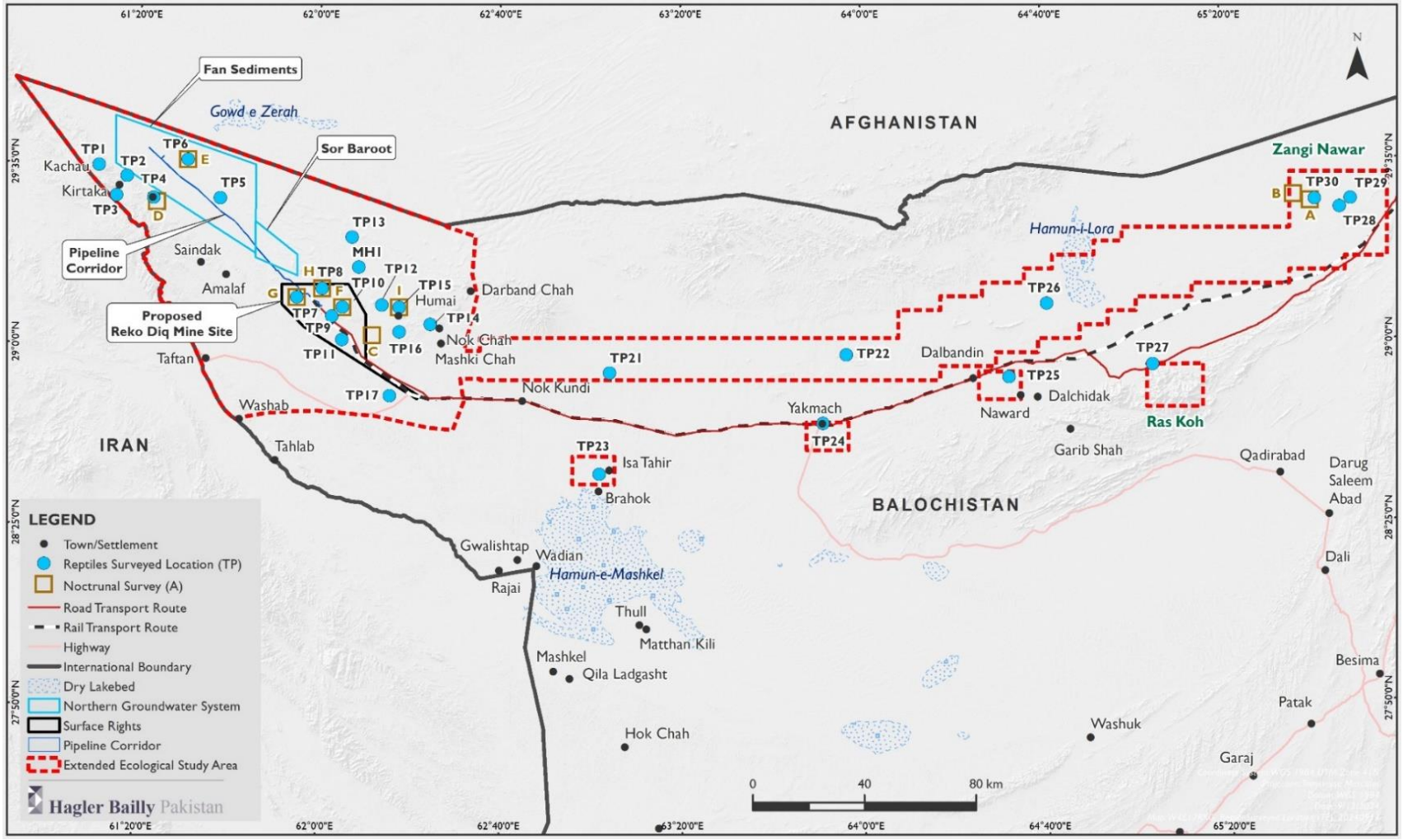

Figure 4-11: Recent Additional Sample Locations for Herpetofauna

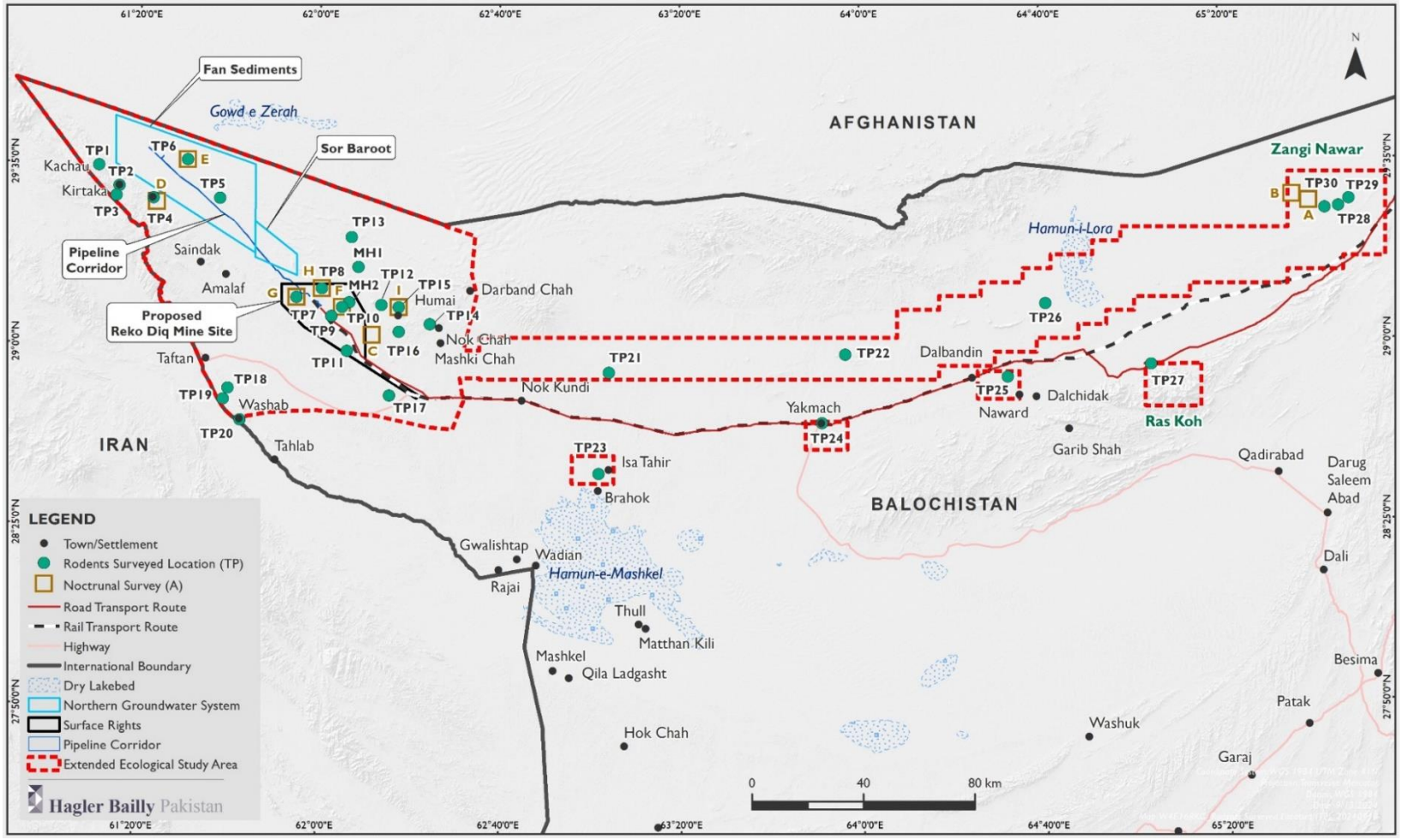

Figure 4-12: Recent Additional Sample Locations for Small Mammals

4.7. Energy and GHGs

The Project will draw on a number of different sources of power supply as indicated on the roadmap in Figure 4-13, showing the progression of these proposed options over time.

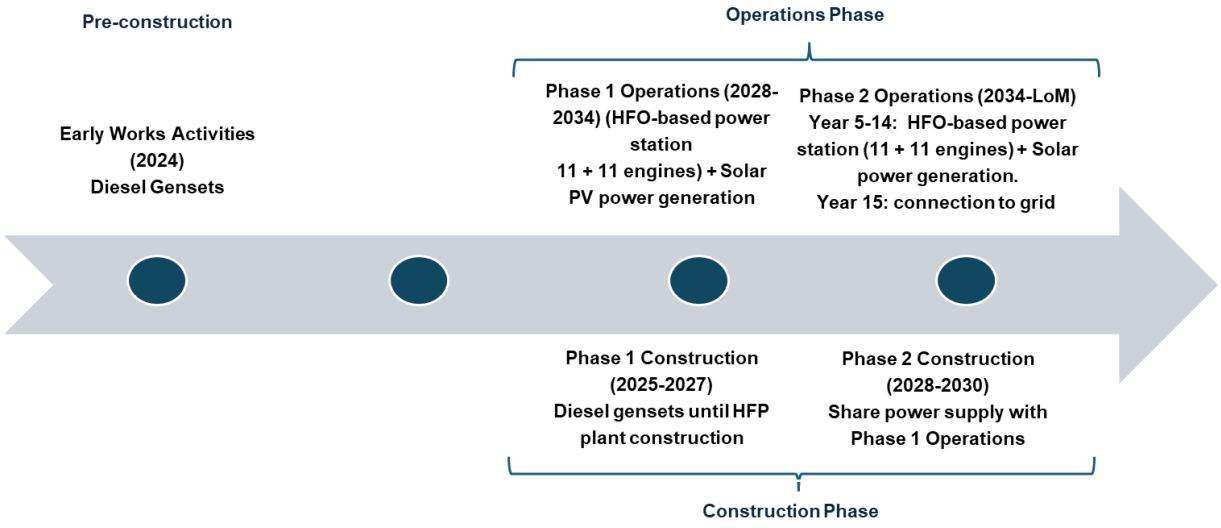

Figure 4-13: Power Supply Roadmap

The Project will utilise diesel generators during the early works and construction phases until the establishment of the integrated HFO and solar power system. The HFO and solar power stations will be constructed at the RDMS. From Year 15 the planned primary power supply is a connection to the National grid.

Pakistan has over 37 Gigawatt (GW) of installed generation capacity and a combined customer demand of 25 GW, therefore a significant reserve generation capacity is available. Importantly, large proportions of the current power generation across the grid are provided from hydropower (Figure 4-14), and Pakistan aims to generate 60% of its energy from clean and renewable power sources by 2030.

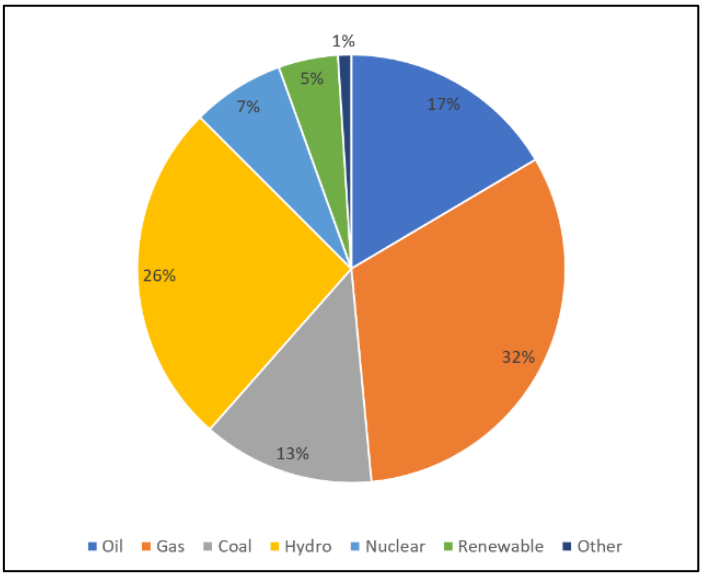

Figure 4-14: Current sources of electricity generation in Pakistan

4.7.1. Power Supply Alternatives

Prior to selecting the above energy mix, an extensive alternatives assessment was conducted as part of the Project Feasibility Study and the power options explored are presented in Table 4-2.

Table 4-2: Power Supply Options Investigated and Considered

Alternative	Description
Heavy Fuel Oil	This option considers establishing an HFO-based power station at the proposed RDMS. The fuel will be transported by rail from suppliers in Pakistan to the mine site.
Diesel	This option considers the construction of a diesel-based power station at the proposed RDMS. The fuel to the power station will be transported by truck via road from suppliers in Pakistan to the mine site.
Gas	This option includes the establishment of a gas-based power station at the proposed RDMS, and a pipeline where gas will be pumped to the mine site from a Liquefied Natural Gas (LNG) import terminal at Gwadar Port. Section 4.4. of the ESIA report shows the route considered for the gas pipeline from the Gwadar Port to the mine site.
Geothermal	This option assessed the Geothermal potential of the Koh-I-Sultan volcano system that is located about 50 km east of the Reko Diq Mining Lease Area.
Solar	This option evaluates the viability of establishing a Solar PV power station at the proposed RDMS with and without Battery Energy Storage System (BESS).
Wind	This option considers setting up wind turbines at the proposed RDMS.

Alternative	Description
Grid Connection	This option considers a Grid connection to the Pakistan national electricity network. Several connections options have been provided by the National Transmission and Despatch Company.

Multiple factors were considered during the alternatives assessment such as availability and ease of access, capital, operating and maintenance costs (Section 4.4 of the ESIA report).

- An HFO plant is needed to meet the need for a mature and reliable technology to ensure smooth commissioning and operations, consistent and immediate power on demand and is readily available.
- RDMC are committed to investing in renewable energy sources and will install a 150MW solar PV system, which is the maximum power that can be generate and used during daylight hours and we will use 100% of this generation, of which the mine for that generation capacity will be entirely operating on solar. This equates to 20% penetration on an annual cycle due to peaks, disruptions and nighttime. No additional solar can be consumed with the installation of BESS.
- Wind will continue to be investigated as an option, however currently when compared to solar renewable, this option has larger land requirements and higher operating and maintenance costs, increased capital outlay, longer project development schedules and a requirement for highly skilled construction and maintenance personnel.
- The required capital costs for gas fired power generation are not feasible. Additionally, the construction of the pipeline from Gwadar Port to the mine site poses security concerns as it will pass through some of the high-risk areas of Balochistan, including Parom, Dashtak, Pui Wani, and Chib. This option would also require significant land acquisition for construction of the approximately 670 km long pipeline from Gwadar Port to the mine.
- Grid connection has significant benefits, including the introduction of reliable power to towns and communities along proposed transmission routes, the fact that there is already significant renewable penetration on the National Grid, power costs would be expected to be significantly lower and there would not be a need to transport large volumes of HFO.
- However, the capital and timing and technical (reliability improvements are required for parts of the existing grid) constraints make this option unfeasible until later in the project life.

RDMC is, in parallel, continuing to explore the renewable potential of the area including options for wind and additional solar, as well as battery storage options.

4.7.2. Greenhouse Gas Emissions Assessment

The following section discusses the Project's estimated GHG emissions. This covers both the construction and operation phases. The first three years are considered as the construction phase, whilst the remaining 39 years are considered the operational phase.

The GHG assessment is based on information gathered through the Project Feasibility Study which has taken place in parallel to this ESIA process. The activity data used to calculate the GHG emissions during the construction and operation phases are detailed in the Climate Change Risk Assessment included in Section 6.4.2 of the ESIA report.

4.7.2.1. GHG Emissions

The scope 1, 2 and 3 emissions for the construction and operation phase are shown in Table 4-3 for the baseline (HFO together with 20% solar PV penetration with change to main grid power from year 15.

Table 4-3: Estimated total GHG Emissions for each Phase the LoM.

Scope	Construction (tCO_2e)	Operation (tCO_2e)	LoM (tCO_2e)	Operation - Average (tCO_2e/y)
1	166,411	39,947,507	40,113,918	1,024,295
2	-	13,255,014	13,255,014	339,872
3	36,089	118,504,413	118,540,502	3,038,575

The scope 1 GHG emissions during construction originate from the consumption of fossil fuels onsite (diesel gensets for electricity generation) as well as from transporting material to site. During operational phase a large contribution to the scope 1 emission will be from the is the large open pit fleet size where alternative technologies do not yet exist. Further to this is the use of a HFO plant for the first 15 years of the operational phase before converting to main grid supply. Table 4-4 below compares years 7 and 24 for the proposed Project, demonstrating the annual GHG profiles for the peak use of HFO (with solar PV) and power supplied from the Pakistan National Grid.

Table 4-4: Annual GHG profiles for primary power supply by HFO (with Solar PV) versus Grid connection

Year	Scope 1 (tCO_2e)	Scope 2 (tCO_2e)	Scope 3 (tCO_2e)	Total Annual (tCO_2e)
Year 7 (HFO)	1,783,528	0	4,032,504	5,816,032
Year 24 (Grid)	924,373	642,298	2,967,980	4,534,651

The national annual emissions for Pakistan were just over 520 million tCO_2e in 2022 (Our World in Data, 2024). Based on this, the Project's average annual scope 1 and scope 2 emissions will increase the national annual emissions by approximately 0.2%.

4.7.2.2. Alternatives Analysis

An alternatives analysis is required for projects aligning to the Equator Principles (EP4). For scope 1 emissions, the analysis must aim to ascertain the best practicable environmental option with inclusion of consideration of alternative fuel or energy sources, if applicable. There are several alternative technologies that could be considered by the Project proponent and some of these are already being considered by the project proponent. These are outlined in Section 6 of the ESIA Report. Implementation of these is limited by the availability of technology and their respective costs therefore some mitigation measures are therefore not immediately implementable but should be revisited throughout the LoM.

4.7.2.3. Climate Change Risks and Vulnerability

A comprehensive assessment of the climate change has been undertaken for the Project. The assessment highlights the significant risks posed by climate change, including increased global temperatures, rising sea levels, and more frequent extreme weather events such as heatwaves, droughts, and heavy precipitation and are detailed in Section 6.4.2 of the ESIA report. These changes can lead to severe impacts on human health, ecosystems, and economic stability. Pakistan is particularly vulnerable to climate change and faces risks like wildfires, floods, droughts, and extreme weather events. The assessment discusses the GHG emissions associated with the Project and emphasises the need for mitigation measures to reduce emissions. It highlights the importance of transitioning to renewable energy sources and improving energy efficiency to meet national and global climate targets. The assessment also identifies opportunities for the Project to contribute positively to climate goals, such as through participation in carbon sequestration projects and adoption of low-emission technologies.

Key risks include:

- *Heavy Rainfall and Flooding*: Increased rainfall can lead to infrastructure damage, operational delays, and environmental contamination.
- *Extreme Heat:* Higher temperatures can reduce operational efficiency, increase health risks for workers, affect the stability of stored chemicals and explosives and will reduce the amount of energy produced by the solar panels installed due to an increase in resistance (high temperatures slow the speed of the electrical current).
- *Droughts:* Reduced water availability can impact mining operations and increase competition for water resources with local communities.

To address these risks, the assessment recommends several adaptation and mitigation strategies, including:

- *Improving Infrastructure Resilience*: Enhancing stormwater management, reinforcing slopes, and ensuring robust maintenance of infrastructure.
- *Health and Safety Measures*: Implementing measures to protect workers from extreme heat and ensuring safe storage of hazardous materials.
- *Water Management*: Increasing water efficiency and exploring alternative water sources to reduce reliance on groundwater.

Project specific risks and the impacts thereof on worker health and safety, operations and the value chain are detailed in section 6.4.2 of the ESIA report. To allow for construction years and assess risks into the decommissioning phase, hazard data is presented as a change from the historic baseline to a time horizon covering 2070. Additional details on the justification and source of each quantitative hazard score can be found in Section 6.4.2 of the ESIA report.

4.8. Other Aspects

4.8.1. Noise

Noise surveys were conducted in August 2020, September 2022, and October 2023, at 18 pre-selected measurement locations. Nine out of 17 locations fall within the Balochistan province, and the remaining locations were within Sindh jurisdiction. The ambient noise levels were measured according to national and international guidelines where long-term continuous measurements, over a 24-hour period, were recorded at each location (with the exception of Spezand along the rail route where monitoring was carried out for a reduced period of 15 hours due to security considerations). The monitored noise levels were compared with NEQS, BEQS, Sindh Environmental Quality Standards (SEQS) and IFC Environmental Health and Safety (EHS) General Guidelines.

Noise surveys conducted at RDMS, along access route to the mine site and the Project transport routes (Road Transport Route and Rail Transport Route) and at Port Qasim revealed that ambient noise levels were generally within national and international guidelines, except for specific instances where high-speed winds and vehicular movement caused exceedances. At the RDMS, noise levels exceeded limits due to winds, while along the Road and Rail Transport Routes, traffic and urban development contributed to higher noise levels. In Sindh, all monitored locations exceeded residential noise limits due to proximity to highways and railways. At Port Qasim, industrial operations caused nighttime noise levels to exceed limits, though daytime levels remained compliant.

No significant increase in the ambient noise levels related to the construction of the Northern Borefield or water supply pipeline to the Mine Site is anticipated as construction work is minimal and receptors are located at relatively large distances (>15 km) away. For this reason, noise levels were not monitored within the Northern Groundwater System.

The following four impacts were identified on ambient noise levels due to the Project activities. The details regarding the assessment of increase in noise levels are available in Chapter 6 of the Project ESIA Report. All these impacts are minor in nature and will reduce to either minor

with the lower post-mitigation significance or negligible after the implementation of the mitigations. The two impacts (Impact 15 and Impact 16) will be experienced throughout life of mine while the remaining two are anticipated during operational phase (Impact 24 and Impact 25) only. The pre- and post-mitigation significance and the mitigations recommended as part of the ESIA process for each identified impact are available in Chapter 5 of this report.

- Impact 15: Nuisance at receptors due to noise generated from construction, operations and decommissioning of mine.
- Impact 16: Increase in vehicular movement on local roads can cause elevated noise levels.
- Impact 24: Nuisance to local communities due to impulse noise generated from blasting activities.
- Impact 25: Nuisance to local communities due to elevated noise levels from railway movement.

4.8.2. Traffic

The traffic baseline study for the Reko Diq Mining Project involved detailed traffic counts conducted in August 2020, September 2022, September 2023, and October 2023. These counts were carried out along the access road to the RDMS, the N-40 Highway from the RDMS to Dalbandin, and at Port Qasim. These counts collected data on the number and types of vehicles using these routes to understand existing traffic volumes and trends, and to anticipate the potential impact of the project's activities on local traffic conditions. The details on traffic counts and their geographical coordinates are available in Section 5.7 of the ESIA report.

Traffic counts on the access road to the RDMS and the N-40 Highway from RDMS to Dalbandin revealed peak traffic times in the morning (between 7:00 and 10:00 AM) and evening (between 5:00 and 7:00 PM), primarily due to truck and bus schedules. Light transport vehicles (LTVs) made up a significant portion of daytime traffic, while Heavy Transport Vehicles (HTVs) were more prevalent at night, especially on the N-40 highway, which is a major route for goods and fuel transport. At Port Qasim, traffic also peaked in the morning and late afternoon (between 4:00 and 5:00 PM), with HTVs dominating nighttime traffic due to industrial activities.

The increase in road traffic due to Project activity will be experienced throughout life of mine (Impact 17). Although the increase in traffic will be marginal (about 1% of the baseline traffic levels), the impact significance for both pre- and post-mitigation will remain moderate as the impact will remain for the life of the Project. The pre- and post-mitigation significance and the mitigations recommended as part of the ESIA process for each identified impact are available in Chapter 5 of this report.

4.8.3. Visual

The RDMS will result in a permanent alteration of the landscape, and subsequent impact on visual amenity. Viewshed modelling was carried out based on LiDAR coverage and

supplemented with the AW3D30 dataset. Results of the modelling for the daytime show the RDMS will only be visible from the Humai settlement (primarily a portion of the TSF will be visible at some point during the LoM).

A nighttime scenario representing the light emitted from buildings, in particular, the process plant was modelled for both early in the Project life and then later when the TSF and WRDs were more established (where any emitted light may be blocked). In both cases, light from the Project will not be visible by any of the communities in the area at any stage of the project.

The Project will investigate options rehabilitate to match the landscape to the extent possible and will investigate any perceptual concerns as part of its ongoing stakeholder consultation process. The project will investigate options for limiting lighting impacts to within the mine site that conform to operational illumination requirements. With mitigation, this impact is reduced to minor in significance.

4.8.4. Soil and Sediments

The dominant soil in Balochistan has a homogenous porous structure with a lime content varying from 5% to 30% and is uniformly distributed in most soil textures, resulting in highly alkaline soils. Where there is a high lime content (>15%), the soil is hard when dry and friable which will prevent root penetration, decrease water infiltration and result in increased runoff. This can result in increased risk of flash floods during heavy precipitation. The organic matter content is generally low, in the order of 0.3% to 0.5% where most of the surface of mountains and hills slopes are bare rock without soil cover.

The soils at the proposed mine area are shallow (less than 1 m deep in most places) and consist largely of sands and gravels with fines (silt and clay material) comprising an average of 10% to 30% of the total weight. A large proportion of the soil fraction has undergone aeolian (wind) transport and is still variably mobile depending on the soil fraction.

During construction, there will be significant land disturbance which can significantly impact local soils through erosion, compaction, and loss of structure, thereby altering natural drainage patterns, potentially leading to flooding or waterlogging and exacerbate further reduced soil fertility and water infiltration.

There is presently minimal vegetation, and the land is not of economic agricultural value for local communities.

Erosion related risks due to the modification of the site topography are also low as topsoil coverage is minimal. Thus, any erosion related modifications will have no impacts beyond some loss of visual amenity. Additionally, the Project will manage storm water flows to ensure that no long-term waterlogging occurs at the Project site due to modification of the topography.

The Project will implement several mitigation measures, including the planning of construction activities to minimise disturbance to the soil and will develop a Ground Disturbance Control Plan. The impact post-mitigation will be minor in significance.

4.8.5. Air Quality

An Air Quality Assessment, including Air Dispersion Modelling, was conducted as part of this ESIA process and involved both active and passive sampling of particulate matter (PM_{10} and $PM_{2.5}$) and gaseous pollutants (NO_2 and SO_2). The baseline data revealed that PM_{10} and $PM_{2.5}$ concentrations were generally within the limits set by the NEQS, BEQS and International IFC guidelines, with occasional exceedances attributed to natural sources, due to the arid environment and prevailing wind conditions. NO_2 and SO_2 levels observed at RDMS, Humai, and along the Road Transport Route were consistently below the regulatory limits, indicating minimal impact from anthropogenic activities.

The Humai settlement (located ~20 km to the east of the RDMS) and onsite accommodation facility (located ~8.9 km to the west of the Western Porphyry pit) have been considered as potential receptors for the air dispersion modelling with the predicted outputs as follows:

- Humai Settlement: The maximum Predicted Ambient Concentrations of gaseous pollutants (NO_2 and SO_2) and particulate matter (PM_{10} and $PM_{2.5}$) remained within the applicable limits prescribed in NEQS/BEQS for Ambient Air Quality, IFC General EHS Guidelines, and USEPA NAAQS for both 24-hours and annual averaging.
- Onsite Accommodation Facility: The Predicted Ambient Concentrations of gaseous pollutants (NO_2 and SO_2) at this location remained within the applicable limits for both 24-hours and annual averaging periods. With respect to Particulate Matter, the following conclusions can be drawn for this location:
    - Low Wind Speeds: Exceedances are expected at the onsite accommodation facility due to mining operations during low wind speeds (<6 m/s which accounts for 10% of the year), but this will happen only for 37 days a year. For the remaining 90% of the year, these concentrations remain within the applicable limits.
    - High Wind Speeds: Periods with high wind speeds (>6 m/s) occur for ~47% of the time of the year. During this period, the PM_{10} and $PM_{2.5}$ concentrations at the accommodation facility due to mine operations will remain within the applicable limits. During the high wind speeds, the winds predominantly blow from the north and northwest (away from the onsite accommodation camp).

There will be an impact on the accommodation facility due to an increase in PM_{10} and $PM_{2.5}$ concentrations (intermittently and dependant on wind conditions) throughout the Life of the Mine (Impact 19). The construction and decommissioning activities of the Project will emit gaseous pollutants and particulate matter, but these impacts will remain within regulated limits.

RDMC will continue with PM_{10} and $PM_{2.5}$ monitoring and will include monitoring points at the accommodation camp and Humai. Mitigation measures have been included in Table 5-1.

4.8.6. Cultural Heritage

A Cultural Heritage Assessment was conducted as part of this ESIA process following the cultural heritage survey in April 2024 to update the cultural baseline prepared for the 2010 ESIA. The study focused on both temporary and permanent archaeological sites, including stone tool workshops and long-term human settlements. The findings are as follows:

- **RDMS (including the Northern Groundwater System):** All four archaeological sites (stone tool workshops) identified and marked during the 2010 Cultural Baseline Survey Report were revisited, examined, and photographed. The four archaeological sites that are located within the Project footprint are temporary archaeological sites and are unlikely to have buried remains. Additionally, eleven rock features were investigated. Nine of these rock features are located within the mining area footprint and the remaining two occur near the Northern Groundwater System.
- **Rail Transport Route:** Twenty-five railway stations constructed between 1917 and 1920 were identified along this route, however these are not expected to be impacted as a result of the Project.

4.8.7. Other Socio-economic impacts

As part of the detailed ESIA, several additional impacts on the socio-economic environment were identified are summarised below.

Increase in the Cost of Living: The Project is expected to stimulate economic activity in the region and as the Project progresses, there will be an influx of workers, in turn leading to an increased demand for goods and services. Given the current reliance on imported goods and the limited presence of locally produced products this surge in demand could significantly impact local markets and the local community have raised the concern the this will exacerbate their existing cost of living challenges. RDMC, as part of its SEP, will monitor perceptions related to price increases, and explore initiatives to alleviate price increases should they occur.

Loss of livelihood due to retrenchment: At the end of both the construction and operational activities, there will be planned retrenchments. The Construction phase will require the contracting / employment of over 10,000 people with a reduction of staff compliment to ~6,000 people during operations. While the operations phase will require less labour, the Project aims to retain as many local employees as possible and additionally, training plans will be developed to formalise skills obtained during construction, enhancing the employability of those no longer needed by the Project.

There will be further retrenchments once the Project reaches the end of its life and enters into the closure phase. The Project will implement a cohesive training plan and enhance the local infrastructure such that the local communities are less reliant on employment offered by the Project at the time of decommissioning and are able to pursue employment opportunities of equivalent or better income elsewhere. A social closure plan should be developed and implemented in the years before closure to address impacts and risks associated with this phase of the Project.

Discontent over Absence of Passenger Trains for General Public: The Project will utilise trains for the transport of concentrate to Port Qasim, utilising the existing railway tracks within the Rail Transport Route. It is also important to note that currently, very few passenger trains operate on these tracks, resulting in limited access to passenger transportation services for local communities.

The absence of these services may already be a source of frustration and grievance among communities relying on public transportation in Balochistan leaving them feeling neglected or marginalised due to the lack of accessible transportation options. With the Project's trains primarily using the railway for resource movement, there is a risk of exacerbating existing grievances within the local community who may perceive that the tracks are being utilised solely for the benefit of the Project, while their own transportation needs are being neglected.

To address these concerns, the Project will include consultations with communities situated near the Rail Transport Route as part of its SEP along with relevant government institutions such as the Ministry of Railways. In turn, expectations and perceptions will be monitored and appropriate measures to address these concerns will be implemented.

5. Summary of Material Management Actions

Below is a list of the key impacts for the project together with the material management actions that will be required to mitigate these impacts. A comprehensive list of impacts together with the full extent of the recommended actions are included in the ESIA report (Refer to Table 10-1.

Table 5-1: Summary of Impacts and Proposed Management Actions for the Project

Impacts Identified	Project Phase	Pre-Mitigation Significance	Management Actions (Mitigation/Enhancement Measures)	Post-Mitigation Significance
Impact 01: Direct, indirect, and induced employment at the local level for men and women resulting in increased prosperity and wellbeing (Positive Impact).	Life of Project	Moderate (positive) +60	• Develop and implement preferential recruitment of local candidates, with consideration of vulnerable individuals, provided they have the required skills and qualifications. • Promote local employment targets and monitoring for subcontractors. • Implement a structured stakeholder engagement process and grievance. mechanism, as well as direct communication channels to surrounding communities. • Determine and apply what is 'fair and transparent' in recruitment, including the distribution of jobs between different community groups, in consultation with local communities and their leaders. • Continue to implement local training and skills development programs.	Moderate (positive) +65
Impact 02: Disputes over the distribution (real and perceived) of Project employment and other benefits within and between the local	Life of Project	Moderate (negative) -44	• Implement a comprehensive Stakeholder Engagement Plan • Ensure women and vulnerable groups are engaged and that community development initiatives consider these groups. • Continue to implement local training and skills development programs. • Complete a needs assessment for the surrounding communities.	Negligible (negative) -18

Impacts Identified	Project Phase	Pre-Mitigation Significance	Management Actions (Mitigation/Enhancement Measures)	Post-Mitigation Significance
community near the Project facilities.			• Continue to advance the CDC program to ensure that communities are empowered and encouraged to directly address social infrastructure and services challenges.	
Impact 03: Social development projects resulting in improved infrastructure, health and education outcomes and general economic upliftment. (Positive Impact).	Life of Project	Minor (positive) +36	• Formulate, implement and maintain a Community Development Programme including: o A needs assessment of the local communities and tailor development projects accordingly. o Provisions for continual engagement with the local community stakeholders to involve them in the planning and decision-making processes of the social development projects to ensure project outcomes are reflective of community needs. o A system to monitor and evaluate the progress and effectiveness of social development projects. • Ensure consideration of women and vulnerable groups for planned social development projects. • Establish partnerships with educational institutions and local NGOs to enhance the quality of education and promote skills development.	Major (positive) +60
Impact 04: Increase in the stock of skilled human capital due to the transfer of knowledge and skills from the Project resulting in enhanced productivity of	Life of Project	Major (positive) +60	• The Project will assist local communities, especially vulnerable groups having practical skills but lacking qualifications to further increase training and employment opportunities and support initiatives promoting a culture of learning in local communities. •	Major (positive) +70

Impacts Identified	Project Phase	Pre-Mitigation Significance	Management Actions (Mitigation/Enhancement Measures)	Post-Mitigation Significance
local labour (positive impact).				
Impact 07: Real or perceived increase in prices of basic commodities and the cost of living due to the economic activities generated by the Project.	Life of Project	Minor (negative) -30	• Engage with business owners and local government groups with respect to cost-of-living concerns. • Conduct regular community consultations to inform the local community about the factors contributing to inflation, to clarify the Project's role in the local economy, and to address any misconceptions or attributions of price increases to the Project.	Minor (negative) -20
Impact 08: Disturbance of soil due to construction and operation of the mine.	Life of Project	Moderate (negative) -40	• Plan construction activities to minimise the area of soil disturbance and limit the movement of heavy machinery to designated pathways to prevent widespread soil compaction. • Use diversion channels or berms to redirect clean water away from disturbed soils and reduce erosion risk. ○ The Project will develop a Ground Disturbance Control Plan including adequate provisions for Excavation areas, management of backfill and measures for rehabilitation of the landscape.	Minor (negative) -35
Impact 11: Terrestrial habitat loss due to land disturbance.	Life of Project	Moderate (negative) -55	• Prepared and implement a Biodiversity Management/BAP (BMP) in accordance with the Barrick Biodiversity Standard • Project footprint will be minimised, and disturbance to, or movement of, soil and vegetation will be minimised. • Rehabilitation of disturbed areas, where relevant and possible.	Moderate (negative) -50

Impacts Identified	Project Phase	Pre-Mitigation Significance	Management Actions (Mitigation/Enhancement Measures)	Post-Mitigation Significance
			• Implement measures such as fencing and signage to prevent unauthorised access and disturbance to wildlife. • Utilise designated routes for the movement of vehicles and machinery.	
Impact 12: Impacts on abundance and diversity of terrestrial flora and fauna with the Project disturbance area including threatened species caused by habitat loss or modification due to Project activities.	Life of Project	Moderate (negative) -40	• The ESMMP and BMP prepared for the Project will support the conservation of the biodiversity in the area. • Promote community engagement and awareness programs to discourage removal of vegetation and educate locals about the ecological importance of native plant conservation. • Implement rehabilitation plan to restore habitat post-construction. • Implement adaptive management strategies based on findings from the management programs.	Minor (negative) -36
Impact 13: Impacts to habitat critical to the Alcocks Toad Headed Agama.	Life of Project	Minor (negative) -30	• Develop a BMP/BAP. There are currently ongoing broad range surveys which will inform the biodiversity management actions. Given the uncertainty around the target species, likely first steps will be to commit to further research and surveys to improve the level of understanding and develop long term management actions. • Impose designated speed limits and restrict vehicle movement to designated routes to avoid off-roading to minimise disruption to habitat. • Develop an awareness program for the Alcock's Toad Headed Agama to enable species identification and relocation	Minor (negative) -27
Impact 15: Nuisance at receptors due to noise generated from	Life of Project	Minor (negative) -36	• The Project will develop and implement a Noise Management Plan. • Monitor and maintain noise producing units to manufacturing specifications, to reduce noise levels to the lowest possible extent.	Minor (negative) -27

Impacts Identified	Project Phase	Pre-Mitigation Significance	Management Actions (Mitigation/Enhancement Measures)	Post-Mitigation Significance
construction, operations and decommissioning of mine.			• Consider installing visual alarms instead of or in addition to audible alarms to the extent possible. • Installation of noise abatement devices around noise producing equipment such as mufflers and silencers will reduce noise at the source wherever feasible.	
Impact 17: Increase in traffic volumes due to Project-related transportation resulting in increased congestion, road wear and increased community safety risks.	Life of Project	Moderate (negative) -45	○ The Project will implement a Traffic Management Strategy which will include provisions for the use of alternative routes, timing for HTV movement, speed limits. ○ Training programmes for safe driving practices including vehicle maintenance, drug and alcohol use and managing security risks.	Moderate (negative) -40
Impact 18: Increased movement of sediment to drainage lines resulting from erosion of disturbed soils during construction and operation of mine.	Life of Project	Moderate (negative) -40	• Minimise the disturbance of soils when construction and demolition of infrastructure will take place; • Movement of machinery and vehicles should be restricted to designated access roads to minimise the extent of soil disturbance; • Maintain sediment and erosion control measures to minimise entry of sediment into nearby drainage lines; and • Landscape re-profiling to be undertaken to rehabilitate disturbed sites and to allow free drainage.	Minor (negative) -21
Impact 19: Increase in the concentration of PM at the accommodation facility due to mine development including	Life of Project	Moderate (negative) -40	• Installation of dust control measures to reduce dust emissions from mining equipment including hoppers, conveyors etc., • Progressive closure of the cleaner cells of the TSF to prevent dust generation and release of other pollutants from the impoundment.	Minor (negative) -28

Impacts Identified	Project Phase	Pre-Mitigation Significance	Management Actions (Mitigation/Enhancement Measures)	Post-Mitigation Significance
the construction, mining and decommissioning activities.			• Installation of windbreaks to reduce emissions due to wind erosion. • Regular maintenance of vehicles as per manufacturers specifications to ensure that the exhaust emissions do not exceed the prescribed limits. • Use of respiratory masks and appropriate PPE.	
Impact 20: Impact on visual amenity due to mining activities and Project facilities.	Life of Project	Moderate (negative) -40	• The Project will investigate options for rehabilitation of the landscape to the extent possible. • The Project will investigate any perceptual concerns as part of its ongoing stakeholder consultation process. • The Project will investigate options for limiting lighting impacts to within the mine site that conform to operational illumination requirements.	Minor (negative) -35
Impact 24: Nuisance to local communities due to impulse noise generated from blasting activities.	Operation Phase	Minor (negative) -21	• The Project will develop and implement a Noise Management Plan. • Blasting times will be posted in advance. • Blasting will not be carried out during night-time hours (10:00 PM to 06:00 AM).	Negligible (negative) -7
Impact 25: Nuisance to local communities due to elevated noise levels from railway movement.	Operation Phase	Minor (negative) -36	• Conduct continuous 24-hours noise monitoring for over a weekday and weekend at nearest receptors where the Predicted Ambient Noise levels with Project railway shows an increase of more than 3 dBA over the baselines. This will assist the Project to assess incremental noise levels as well as their perception by the receptors. • In case of any impacts due to increase in noise levels from Project's railway traffic. collaborate with Pakistan Railway for implementation of mitigation and control measures. The Project will develop and implement a Noise Management Plan.	Minor (negative) -36

6. Closure

The responsible closure of mining operations and the development of sustainable post-closure landforms is key commitment for all Barrick operations and the proposed approach and actions for the Reko Diq Project are summarised below as part of the ESIA process.

Currently there are no known specific Pakistan regulations with regards to mine closure however the closure planning process, and resulting Closure Plan (CP), were developed using overarching international best practice guidelines including:

- Tailings Management, Good Practice Guide, International Council on Mining and Metals, (ICMM, 2021);
- Global Industry Standard on Tailings Management, (ICMM, 2021); and
- Integrated Mine Closure, good practice guideline 2nd edition. International Council of Mining and Metals, 2019 (ICMM, 2019);
- The IFC EHS Guidelines for Mining (2007).

Further to this, is the alignment of the CP with the Barrick Mine Closure Standard, where the approach is aimed at leaving a positive legacy post mining and indicates that “mine closure begins before mining starts, carries on throughout each mine’s life and reflects our goal of sharing benefits and maximising value for local communities”.

6.1. Closure Objectives

The initial closure objectives, as informed by the Barrick Mine Closure Standard, have been adopted for the Project, and include the following:

- Ensure that all reclaimed properties support productive uses considering pre-mining conditions;
- Ensure safety and health of workers during closure activities;
- Ensure that local communities utilising the site after closure are not exposed to unacceptable risks;
- Properly manage all reagents and chemicals. Neutralise or control-and-treat all potentially harmful residual discharges from decommissioned facilities so that water and land resources are properly protected;
- Physically and chemically stabilise remaining structures to ensure proper drainage, minimise erosion and to limit the quantity of water requiring management;
- Reclaim mine properties to protect and enhance pre-existing plant and animal communities;
- Utilise closure strategies that relinquish properties in a self-sustaining condition with little or no need for ongoing care and maintenance;
- Understand and address community concerns regarding closure; and

- Comply with mine closure permitting and regulatory requirements and obtain documented confirmation of meeting all closure requirements.

The overall, long-term post-closure land use objective for the site is to return it to a self-sustaining condition suitable to support pre-mining land use activities, such as wildlife habitat.

6.2. Closure Risk Assessment

An initial closure related risk assessment was completed with the aim of informing the rehabilitation and closure measures required.

Initial closure related risks were identified and ranked based on the review of the specialist studies compiled for this ESIA as well as information supplied by the mine. The key risks identified during the assessment include are highlighted below:

- **Mine employees and the local community (surrounding the mine and Nok Kundi):** Once mining operations cease, almost all employees will no longer be employed with the need to seek employment elsewhere, and the mine will no longer support local suppliers thereby reducing economic opportunities. This in turn will likely lead to increase in unemployment and poverty in the area. Recommendations include the development and implementation of a Social Closure Plan, 5 years prior to closure, to proactively manage the transition, specifically for local mine employees as well as maintain/ Implement a structured stakeholder engagement process and grievance mechanism aligned with the Social Closure Plan.
- **Cumulative impacts on groundwater in the region:** The remote location of the Project in a unique arid environment, with very low rainfall and high evaporation, which is also sparely populated and therefore no key receptors were identified by the various specialist studies. While studies show there is currently little potential for environmental impacts to groundwater within the RDMS as a result of the Project due to the extremely low infiltration rates predicted from hydrogeological modelling, water levels and the highly mineralised, saline nature of the groundwater (SRK, HBP, 2010), there may be a potential residual / latent risk post closure. It is therefore recommended that monitoring of groundwater and surface water should be undertaken frequently throughout the operational phase to improve the understanding of, and changes to, the groundwater system, including water levels and quality.
- **Impacts on Air Quality in the Region:** The remote location of Reko Diq in a unique arid environment where only the onsite accommodation facility was identified as a likely receptor. were identified by the various specialist studies. Baseline air quality monitoring of PM_{10} and $PM_{2.5}$ concentrations indicate exceedances of guideline concentrations under certain conditions:
    - The reported concentration of $PM_{2.5}$ for 24-hour averaging period exceeded the limit of 35 µg/m^3 prescribed in NEQS for ambient air quality for 1% (1-day) of the total days monitored;

- The recorded concentrations of PM_{10} for 24-hour averaging period, remained within the limit of 150 µg/m^3 prescribed in the NEQS and IFC General EHS Guidelines. The reported concentrations of PM_{10} ranged between 13 µg/m^3 and 116 µg/m^3 with average concentration of 39 µg/m^3. Higher concentrations exceeding the average concentration of 39 µg/m^3 were primarily attributed to high-speed winds between 6 m/s and 18 m/s blowing from northeast towards southwest.

6.3. Final Land Use Plan

Develop a detailed post-mining land use plan, based on the post-mining land capabilities currently planned, and ensure this plan is shared with the relevant stakeholders through effective stakeholder engagement. These engagements should ensure input and subsequent buy-in of local communities and any input supplied by stakeholders should be included in the land use plan where appropriate.

No Final Land Use Plan has been developed for the Project as yet. To ensure that areas are not rehabilitated in isolation, it is recommended that a cohesive site wide Final Land Use Plan form an integral component of future updates of the CP.

6.4. Closure and Rehabilitation Actions

The closure measures supporting the proposed closure scenario are detailed in Chapter 8 of the ESIA report. The closure measures are developed in support of achieving the preliminary end land use and mitigating post-closure risks outlined in the Closure Risk Assessment.

The closure measures and associated costs should be refined overtime as part of the regular CP updates as more detailed supporting information becomes available.

6.5. Progressive and Post-Closure Monitoring

It is expected that the decommissioning phase will last five years after which the pre-site relinquishment period, which includes monitoring and maintenance, will continue for an estimated period of three years. Monitoring and maintenance will need to continue until the site relinquishment criteria are met.

Monitoring provides data to confirm whether the rehabilitation techniques implemented have been successful (i.e., whether site closure criteria are being met) should further be an early indication of challenges that may arise so that corrective action can be taken in a timely manner.

Post-closure monitoring programmes are typically informed by the receptors. It is recommended that an adaptive approach is applied. The proposed preliminary monitoring programme is outlined in Chapter 8 of the ESIA report and should be regularly reviewed against operational conditions, monitoring results and updated modelling for the site (air quality/dispersion and groundwater in particular).

7. Conclusion

This study was completed to assess the environmental and socioeconomic impacts associated with the Reko Diq Project over the Life of Mine, with adherence to the legislative and policy framework of Pakistan and International Best Practice, including:

- Provincial level regulations set by the Balochistan and Sindh-EPAs and compliance with the Pakistan Environmental Protection Act 1997 and its regulations (applicable to the Balochistan province at the writing of the ESIA because the rules set out by Balochistan-EPA were in draft form);
- IFC Performance Standards (PSs) on Environmental and Social Management;
- World Bank Group Environmental, Health and Safety Guidelines;
- The Equator Principles;
- The Global Industry Standard on Tailings Management; and
- Barrick sustainability policies.

A number of specialist studies have been completed to ensure all environmental and social aspects have been addressed, all of which are included in the Appendices of this report.

The study has identified a number of environmental and social impacts (negative and positive) and risks and has developed appropriate monitoring programs and mitigation actions which will be implemented, should Environmental Approval be granted, and the Project progresses as planned.

Key environmental and social aspects identified, and proposed mitigation strategies are presented in Table 5-1.

Community consultations for the ESIA were conducted in four rounds.

- **Round 1 – ESIA Preparation:** The settlements near the Reko Diq Mine Site, associated infrastructure (i.e. water supply area), and other water supply investigation areas were consulted between 13 September and 10 October 2022. This included settlements near the RDMS and associated infrastructure and also included Nok Kundi and Dalbandin, as the important administrative centres in the region. A total of 15 communities were consulted during this round. A Background Information Document (BID) was shared with the community and institutional stakeholders. The BID included information regarding the Project, the ESIA process and how they can participate and was prepared in English and Urdu language.
- **Round 2 – ESIA Preparation:** The settlements near the Rail Transport Route and Port Qasim were consulted in Round 2; from 10 October -14 October 2023 as part of the consultations for the ESIA preparation and socio-economic data collection. In this round, a total of 15 communities were consulted where a BID in both English and Urdu was prepared and shared as per Round 1.

- **Round 3 – ESIA Feedback:** The settlements near the RDMS and associated infrastructure were consulted in Round 3, from 15 February - 20 February 2024, to provide information relating to the Project early works and provide opportunity for feedback. Nine communities were selected based on their proximity to the early works activities. Project information materials were prepared in English and Urdu and included information about the RDMC grievance process.
- **Round 4 – ESIA Roadshow and Feedback:** The settlements near the RDMS and associated infrastructure, along the Rail Transport Route and at Port Qasim were consulted between 21 June - 6 July 2024, as part of the ESIA Roadshow. During this round, details of the project and ESIA process together with preliminary impacts identified were provided. A total of 21 communities were engaged during this round and opportunities for feedback were provided. Engagement materials included a variety of information documents in both English and Urdu.

Groundwater abstraction for Project water supply is considered to be a key environmental and social aspect, however due to the lack of receptors it is not classified as an environmental or social impact. Regardless, a comprehensive monitoring program will be implemented including tracking of changes in water levels and quality, and periodic updates to the predictive numerical groundwater model. Additionally, alternative sources including other groundwater options or desalination of seawater will continue to be investigated.