ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

NON-TECHNICAL SUMMARY (NTS)

AL GHAT WIND ENERGY PARK – 600 MW

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ECOLOGICAL AND ENVIRONMENTAL SENSITIVITY

The Project site is not located within an environmentally protected area. The Al Ghat National Park is the environmentally protected area nearest to the Project site, approximately 10 km to the south. Vegetation in the Project area is limited in density. The plant species recorded on site are not of conservation value and most were not evaluated by the IUCN. Camels, sheep and goat, were seen onsite grazing on the local vegetation, as part of mobile livestock camps during the site visit. The bird species recorded in the Project area are classified as LC on the IUCN Red List.

ENVIRONMENTAL ASSESSMENT

An ESIA should assist in ensuring environmentally and socially sound management of the Project during its entire lifetime (construction, operation, decommissioning); also, non-routine events during Project phases. The methodology followed in this ESIA for the impact assessment is presented in the “European Union, EIA - Guidance on scoping, 2017”. This methodology applies a multi-criteria analysis to evaluate impacts significance. It worth notice that the majority of impact significance are “Minor “or “Moderate”.

MITIGATION MEASURES

specific mitigation recommendations for those impacts of Moderate significance are provided. Proposed technical, social and/or institutional mitigation measures for the expected impacts/change during construction and operation of the proposed Project. Additional mitigation measures are presented as part of the Environmental Management Plan Framework and Monitoring Plan.

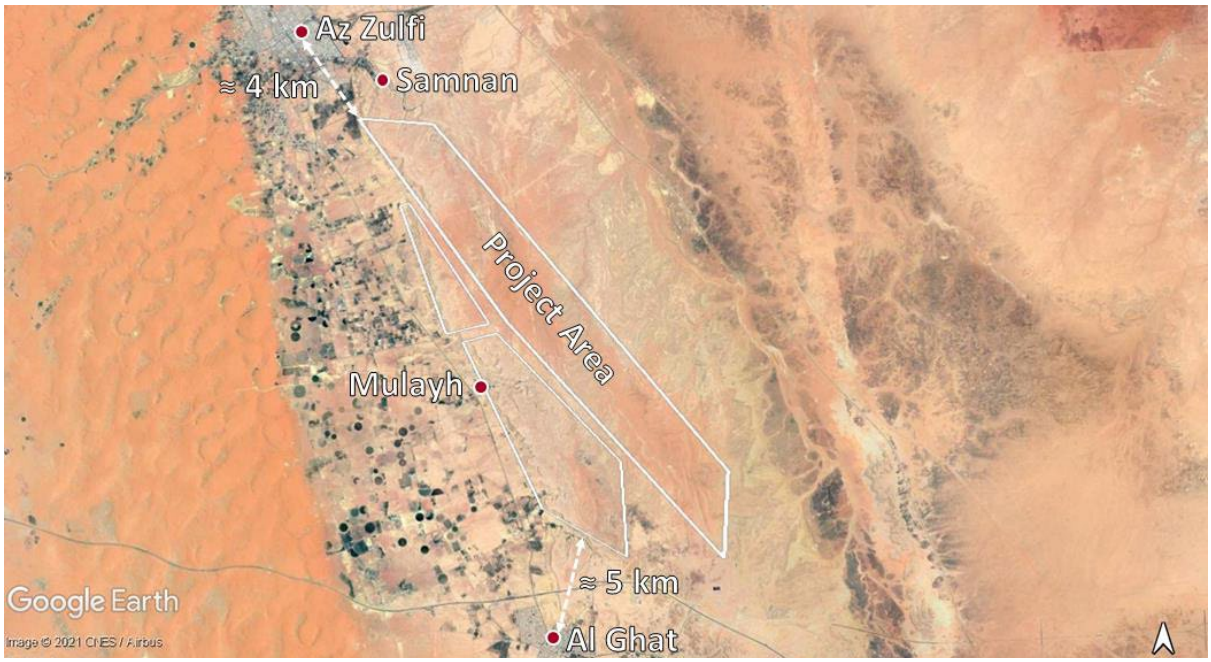
STAKEHOLDER ENGAGEMENT

A summary of the most important stakeholder groups identified and a summary of the analysis of stakeholder significance are presented in this report. Furthermore, a summary of the Stakeholder Engagement activities is documented in this report.

Finally, based on the findings and recommendations of the environmental and social impact assessment for the proposed Project, the assessment team concludes that if mitigation measures are followed properly; the Project shall be meeting all regulatory requirements without any tangible impact to the environment. In addition, Positive impacts upon the local community through renewable energy generation

1 INTRODUCTION

This Environmental and Social Impact Assessment (ESIA) Report has been prepared for the proposed Al Ghat wind energy park (hereafter, the Project), which is located approximately 5 km north of the town of Al Ghat and less than 4 km south of Az Zulfi (Figure 1) in Riyadh Province. The total area of the Project is about 131 km2. The overall plant capacity is expected to be close to 616 MW.



The proposed Project originally proposed the installation and operation of 125 wind turbines, which results in an overall plant capacity of 525 MW. The total power generation capacity is expected to be equivalent to 2068 GWh per year2 (Master Plan, Al Ghat wind energy park, Worley, July 2021).

The current design, which has been assumed for the purpose of this amended ESIA summary prepared by WSP, is presented in Table below.

	Current Design	Original Design
Generation capacity (MW)	600MW	525MW
Turbine Manufacturer (supplier)	Windey Energy Technology Group Co., LTD (OEM)	
Turbine model	WD200-7700	
Turbine hub height (M)	131	120
Turbine rated power (MW)	7.7	4.2
Rotor diameter (M)	197.3	150
Number of wind turbines	80	125
Number of substations	1	1

It should be noted that the number of turbines of the windfarm is significantly reduced. Therefore, while the individual turbine size (in MW), turbine height and rotor diameter are increased in the new design, it is expected that the predicted environmental and social impacts of the new design will generally be reduced compared to those associated with the original design.

The Associated facilities to the Project include the following:

- A switching substation that will be constructed on the site.
- Connection from the switching substation to the transmission lines that already exist in close proximity to the site.

These assets will be developed, owned and operated by the Saudi Electricity Company (SEC) and are outside the scope of the ESIA.

This NTS provides a summary in non-technical language of the findings contained in the ESIA Report. The updated ESIA Report contains more detailed information on the Project. It includes an Environmental and Social Management Plan (ESMP) which describes the monitoring and mitigation requirements for the duration of the project, including responsibilities and any legal requirements.

2 ASSESSMENT METHODOLOGY

To be consistent with the initial ESIA, this ESIA Addendum has followed the same assessment methodology as of the initial ESIA. Where relevant, assessment has been updated and mitigation measures have been provided

2.1 ESIA SCOPE AND OBJECTIVES

The proposed Project has been classified as Category 3 as per NCEC response to the Project Environmental Classification Form. The original ESIA for the windfarm development was prepared by Worley in 2021 and approval was obtained from the Saudi National Center for Environmental Compliance (NCEC) in accordance with local Saudi regulations. The NCEC issued the permit on June 9th, 2022, and it is valid until April 22nd, 2025.

WSP is advised that the original ESIA was completed and is broadly consistent with International Finance Corporation (IFC) requirements for ESIAs at the time that the original ESIA was prepared.

WSP was commissioned by the Client to review the original ESIA and amend the ESIA where required to meet the requirements of the following guidelines and standards for ESIAs:

- International Finance Corporation (IFC) Performance Standards (PSs);
- Equator Principles IV (EP IV);
- IFC Environment, Health & Safety (EHS) General Guidelines;
- IFC Environment, Health & Safety (EHS) Guidelines for Wind Energy; and
- The Japan Bank for International Cooperation (JBIC) Environmental Guidelines.

In undertaking this work, WSP recognizes the original work of Worley and has only amended the ESIA where strictly necessary to comply with the above requirements.

2.2 ORIGINAL ESIA SCOPE AND OBJECTIVES

The scope of work for the Project requires the preparation of an ESIA report based on Saudi national legal requirements, Equator Principles, International Finance Corporation (IFC) Performance Standards and World Bank Environmental, Health, and Safety (EHS) Guidelines. This ESIA provides the legal framework, the proposed project description, description of the receiving environment, the identification and analysis of impacts during the project phases and frameworks for various management plans.

The ESIA study report is prepared to meet the national requirements for permitting new activities as stipulated in the executive regulations for construction and operation environmental permitting. The study is also prepared to meet international guidelines, namely IFC. The main objectives of the ESIA are:

Identify and analyse sensitive components of the existing environment. Review the existing literature and document the regional and site-specific environmental baseline status, as far as practical in order to describe the pre-project environment. All media potentially affected shall be considered

Determine the type, nature and significance of the potential environmental and/or social impacts during construction and operation phases

Identify and recommend practical/ feasible mitigation measures early in the design process to eliminate, minimise, mitigate or avoid any negative environmental and/or social impacts resulting from the Project

Recommend environmental and social management/monitoring plans for the Project in order to eliminate and/or minimise the potential negative environmental and/or social impacts as identified above

The scope of the present study is limited to Al Ghat proposed project different components within the site boundaries.

As per the EP IV categorisation of Project, the Project is likely to be classified as Category B Project and would require an ESIA to be undertaken for the Project.

The EPs make reference to the IFC PSs as the benchmark for ESIAs and therefore compliance with the above-mentioned IFC documents effectively achieves compliance with the assessment requirements of the EP.

There are however some important additional considerations arising from the Eps:

- Climate Change Risk Assessment (CCRA, refer to the Guidance Note on Climate Change Risk Assessment, 2020).
- The project will not generate any continuous direct greenhouse gas (GHG) emissions and, in fact, the project will reduce GHG emissions by reducing power generation by other fossil-fuel fired power plants. A CCRA is therefore unlikely to be required.

3 PHYSICAL ENVIRONMENT

3.1 CLIMATE

The climate in Riyadh Province can be characterized as a hot dry climate in the Köppen Climate Classification system (Köppen, 1884) and is translated in the Volken & Bronnimann classification (2011) as BWh, i.e., tropical, and subtropical desert climate.

3.2 TEMPERATURE AND PRECIPITATION

As the region is a desert climate, it is expected that the temperature varies diurnally and seasonally as well. The closest city with available meteorological data is Az Zulfi at a distance of approximately 4 km from the Project area. Table below shows details on the temperatures in Az Zulfi recorded over a period of 112 years.

Parameter	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Temperature (°C)	24.3	12.4	14.7	19	24.5	30.3	32.5	34.2	33.7	31.3	26	19.3	14.2
Average High Temperature (°C)	32.6	19.6	22.5	27.1	32.1	38.5	41.7	42.3	43	40.7	34.9	27.1	21.3
Average Low Temperature (°C)	18.2	7.4	9.6	13.7	18.4	23.6	26.2	27.2	26.9	24	19	13.7	8.7

Source: Weatherbase website accessed April 2021

Table below shows precipitation records in Az Zulfi recorded over a period of 112 years.

Parameter	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Precipitation (mm)	201.1	25.6	16.4	50.1	35.8	19.5	---	---	---	---	0.3	1.2	1.8

Source: Weatherbase website accessed April 2021

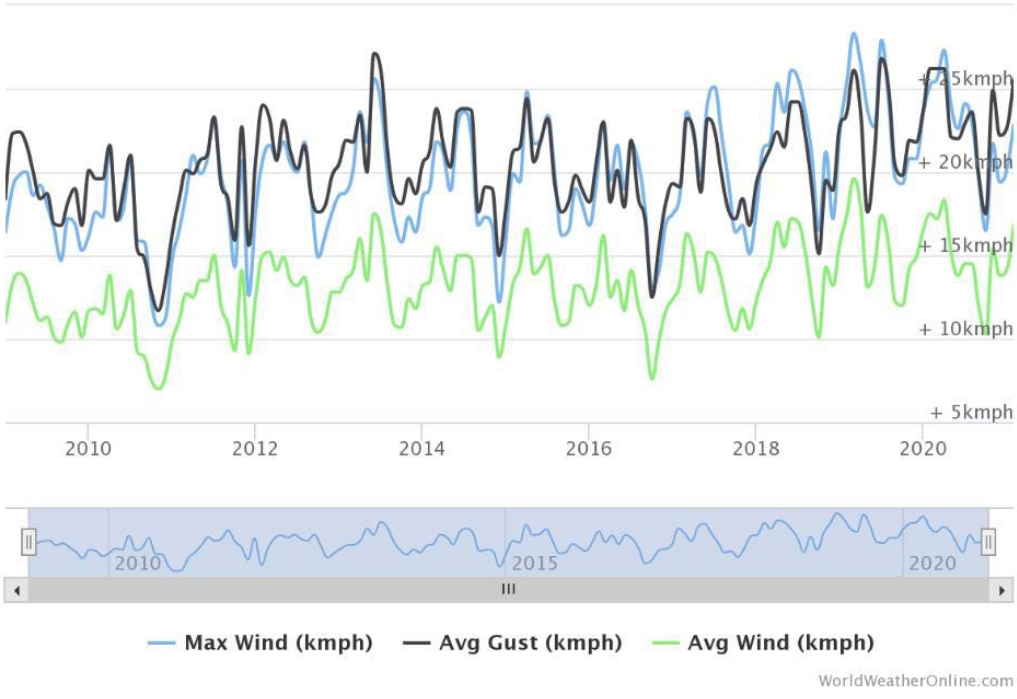
Table below presents humidity records in Az Zulfi recorded over 112 years.

Parameters	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Relative Humidity (%)	29	51	42.2	35	31.5	20.3	12.6	13.4	13.5	16.7	24.7	39.1	48.2
Average Dew point (°C)	5.1	2.5	2	3.2	6.5	5.1	0.1	2.3	2	3.1	4.3	5	3.4

Source: Weatherbase website accessed April 2021

3.3 WIND

The historical wind data has been obtained from data made available by the Saudi government from meteorological stations (OpenData website, accessed March 2021). The available data from the meteorological station at Prince Naif bin Abdulaziz International Airport in Buraydah (formerly Qassim Airport) are presented in Table below. Figure below shows average windspeeds and gust from 2010 until 2020.



Parameter	Year											
	2007											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Direction	ENE	ENE	N	S	N	E	WNW	N	NNE	S	SSW	NNE
	2008											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Direction	NNE	NNE	N	N	ENE	N	NE	NE	NNE	NNE	ENE	SSE
	2009											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Direction	NE	S	ENE	NNE	NNE	ENE	N	E	SSE	SSW	NNE	S
	2010											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Direction	S	E	NNE	E	NNE	NNW	NNW	N	E	E	NE	NE
Speed (knots)	4	6	6	7	7	5	7	6	4	4	3	4
	2011											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Direction	E	NE	NE	E	WSW	NE	N	N	NE	E	NNE	NE
Speed (knots)	7	6	7	8	7	7	6	6	5	5	7	4
	2012											
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Direction	N	NNE	ENE	NNE	ENE	N	N	N	E	SE	E	SE
Speed (knots)	6	7	8	7	8	6	6	5	6	5	5	5

3.4 AIR QUALITY

Az Zulfi industrial city, which includes production facilities for several industries, is at less than 3 km north from the Project site and is thought to be the most important source of air emissions in the site area (Figure below). Sources of air pollutants in the vicinity of the Project site are otherwise expected to be limited to equipment used in agricultural areas and traffic on roads and highways. Dust particles resuspended by wind from the vast dune areas to the west of the site area and north of Az Zulfi also contribute to reduced air quality especially during sandstorms.

It is clear from the results of the measurements that all the elements comply with the permissible values in accordance with the standards of environmental protection in the general environment system and its implementing regulations.

The National Center for Meteorology issues air quality reports summarizing results of monitoring the air quality from various stations located around the Kingdom. The available air quality reports for the capital are available for the first and second quarter of 2020. Table 27 shows the average hourly concentrations of different parameters from this report. The monitoring stations are all located within the city of Riyadh, which is about 200 km south-east of the Project site.

The site was visited in November 2021, during which some field measurements were taken at 5 different points within the boundaries of the proposed project site by Support Establishment for Environmental Services (Figure and Table below).

Location name	Latitude	Longitude
Point 1	26°15'22.56"N	44°51'25.52"E
Point 2	26°15'11.38"N	44°53'34.54"E
Point 3	26° 7'0.79"N	45° 1'7.33"E
Point 4	26° 4'25.13"N	45° 1'30.43"E
Point 5	26°10'9.77"N	44°55'44.35"E

In the results of air parameters measured at the site, it is clear that all the elements comply with the permissible values in accordance with the standards of environmental protection in the general environment system and its implementing regulations.

3.5 NOISE

Noise and vibration were measured through 5 points within the site boundaries and the recorded results were as follows as shown in Table below. It is clear from the results of the measurements that all the elements comply with the permissible values in accordance with the standards of environmental protection in the general environment system and its implementing regulations.

Location	Measurement time		L_{eq}
	Start	End	dB
Point 1			64.2
Point 2			63.1
Point 3	13:30 to 17:30		68.7
Point 4			65.4
Point 5			64.9
The permissible limit according to the NCEC			70

3.6 GEOLOGY AND SOIL

The Arabian Peninsula is a huge crustal plate composed of ancient sedimentary and volcanic rocks, deformed, metamorphosed, and injected by plutonic intrusions. The Arabian Peninsula

consists of two major regions: Arabian Shield in the west and the Arabian Platform in the east. Figure below shows the simplified geologic map of the Arabian Peninsula, the distribution of the main rock sequences and the main tectonic elements (Al Ajmi et.al., 2014). The approximate location of the Project is indicated on the map and corresponds to the northern tip of the Jurassic Tuwaiq limestone formation (shown in blue color) extending for almost 1,000 km all the way from the northern margin of the Rub Al-Khali at Wadi Dawasir and ending at Al Zulfi at the southern margin of An Nafud (Rausch et al., 2013).

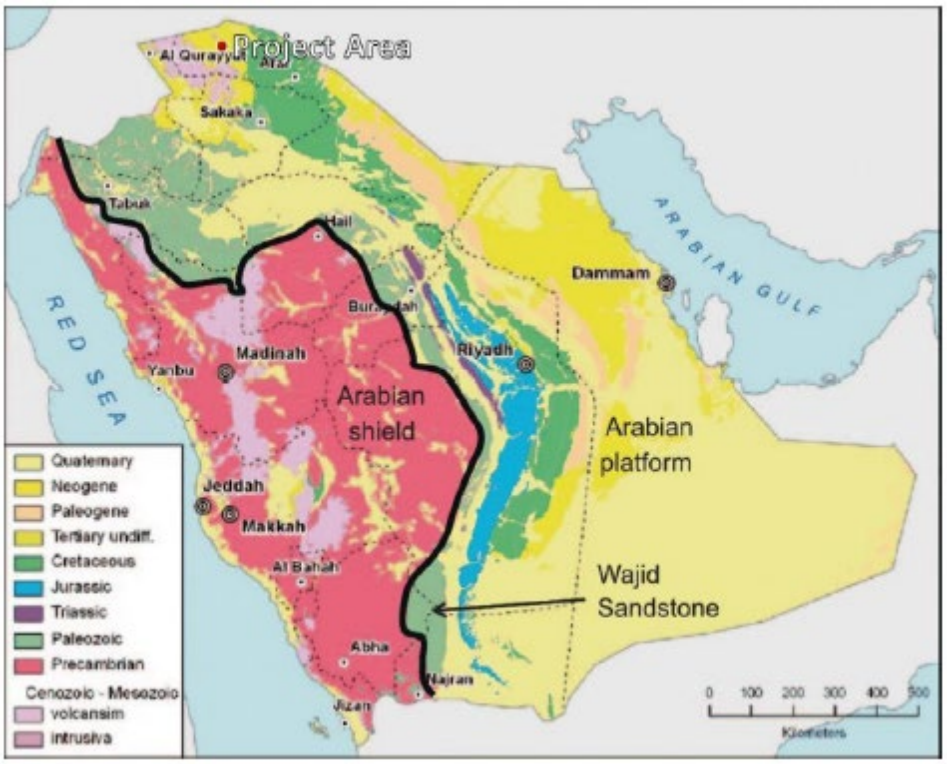


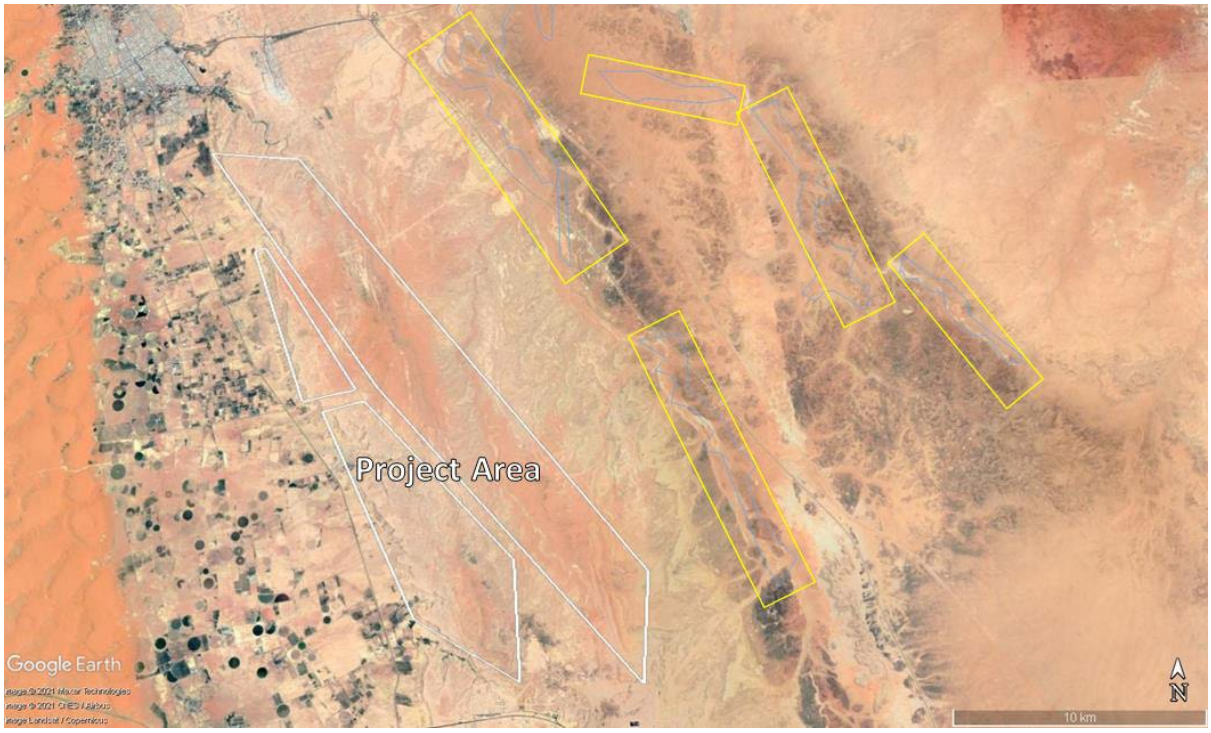
Figure 5-10 Simplified geologic map of the Arabian Peninsula

The Preliminary Site Assessment reported the project site terrain mostly being composed of silt, sand, and gravel. Geotechnical site investigations conducted by ACES in 2021 at the planned Project area included drilling of several 30 m deep boreholes. A similar stratigraphy was described at all drilling locations, namely the few upper meters below ground level consist of sandy soil, underlain by bedrock over the entire borehole depth.

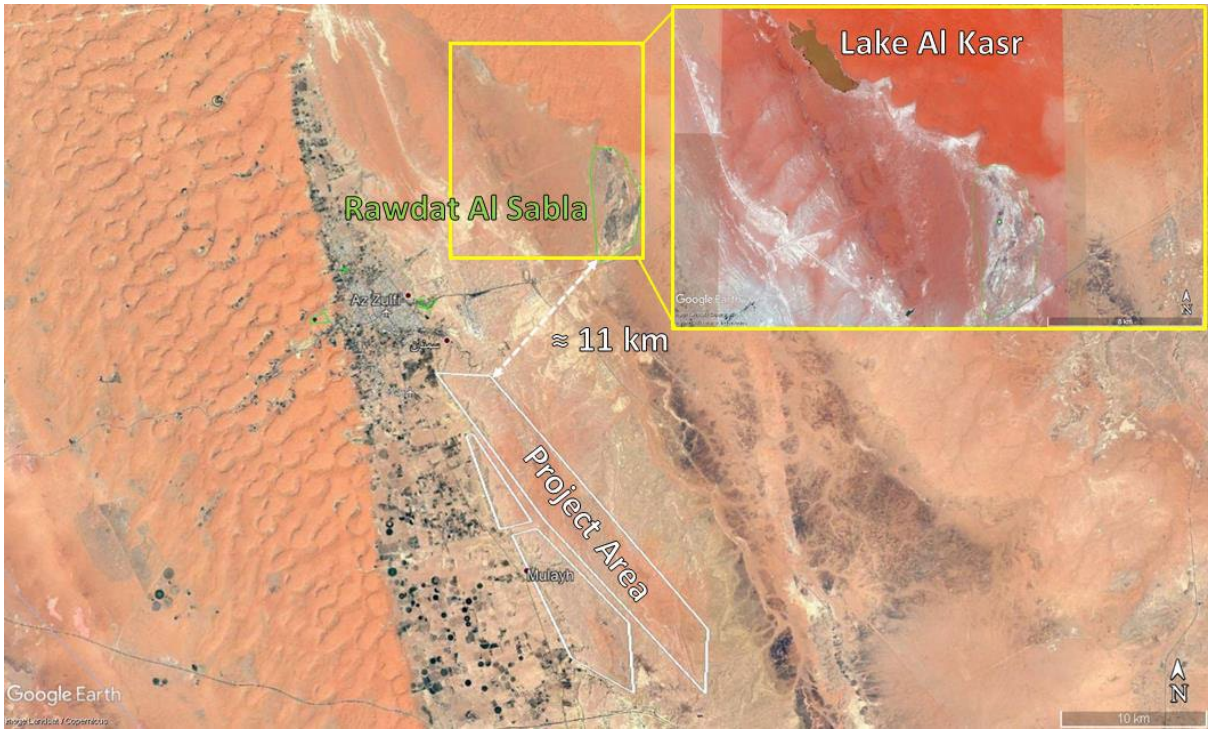
3.7 HYDROLOGY AND WATER RESOURCES

There are no permanent surface water bodies in the Project area and its surroundings, as noted in the Preliminary Site Assessment Report. Wadi channels on the site plateau are discharging towards the east-northeast.

There are several other wadis in the wider area which are filled by water during rainfall events in winter and spring, notably those south of Al Ghat, south of Az Zulfi at Samnan and wadi Marakh which runs parallel to the eastern site border and discharges to the north. Rainwater accumulates east and northeast of the Project area, in lower laying areas identifiable using satellite images from Google Earth (Figure below).



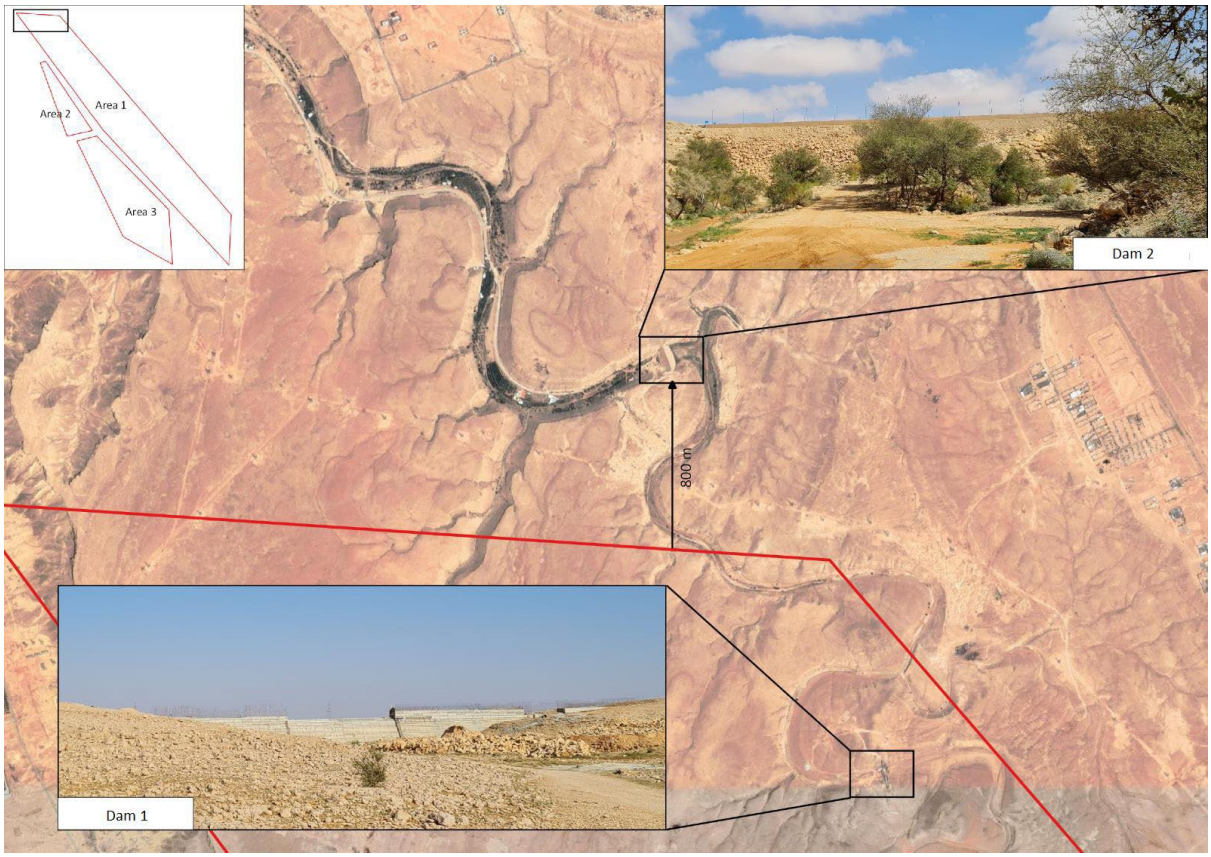
The 10 km-long Al Kasr lake located east of Az-Zulfi and approx. 11 km north-east from the site (Figure below) is an important lake in An Nafud desert and fills up every rainy season when wadi Marakh along with the wadis coming from the site area (Tuwaiq plateau) discharge into it. Rawdat Al Sabla is a green area located adjacent to Al Kasr Lake, to its south.



The hydrology study conducted for the proposed Project concluded that there are no significant catchments contributing to the Project area.

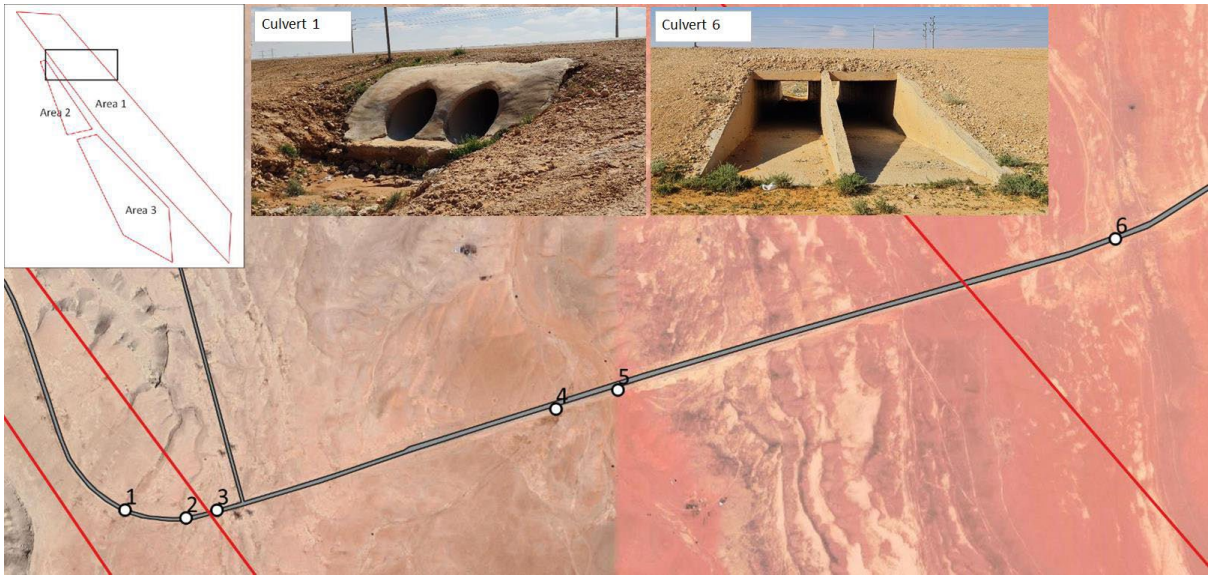
According to the Preliminary Site Assessment, and as also seen on satellite images, two dams are recognizable in a wadi located in the northern parts of the Project area (Figure below). One

of the dams is located inside the boundaries of the Project area (Dam 1), while the other is outside (Dam 2). These dams hold rainwater back from reaching the villages of Samnan and Az Zulfi during heavy rain events and in the same time provide a temporary storage for water for irrigation.



The wadi starts within the northern boundaries of the Project area as shown in Figure 30. According to the Hydrological Assessment Study, the external dam (Dam 2) appears to be an embankment, constructed of excavated materials or of industrial waste materials. The dam inside the project boundaries (Dam 1) is a gravity dam constructed of concrete and/or masonry, which relies on its weight and internal strength for stability. This dam appears to be designed to be overtopped.

Furthermore, there are two concrete culverts that allow water to pass underneath (Figure below). It has been assumed, based on site topography, that these culverts receive the flow coming from the south and discharge it towards the northern part of the site. As can be seen in Figure below, the circular culverts are eroded while the box culverts are in good condition.



Groundwater is expected in the lower areas around the Project site plateau, as evidenced by the abundance of cultivated land in these areas. According to the Preliminary Site Assessment Report, and using satellite images from Google Earth, there are identifiable green areas within the boundaries of the Project area (Figure below), often adjacent to single houses. It can be noticed that these green areas are concentrated in the wadi channels on the plateau; they probably rely on shallow groundwater in alluvial formations in these channels, which is recharged from precipitation.

Figure below shows farmlands from the areas surrounding the Project area. These rely on groundwater from the Zulfi aquifer, hosted by the Dhurma shales and limestone formations. This groundwater is of poor quality (Jaju et al., 2016), not suitable for household use. As such, the Ras El Khair desalination plant on the eastern coast of KSA is the source from which potable water is supplied through a more than 900 km long pipeline to Ryiadh and to the Project area, including to Al-Ghat, Al Zulfi and, Al Majma'ah.

Groundwater was not encountered in the drilled boreholes at the time of this geotechnical site investigation. All boreholes drilled were drilled at 30 m depth.

4 BIOLOGICAL ENVIRONMENT

The area can be classified within the World-Wide Fund for Nature (WWF) eco-region called "Arabian Desert and East - Sahero- Arabian xeric shrub lands". This is a desert eco-region characterized by very little biodiversity. The area is characterized by dry shrubs and Acacia trees and gravel plains. According to the habitat classification scheme of the International Union for Conservation of Nature (IUCN), the Project area can be classified as a Subtropical/Tropical Dry Shrubland. Flora and fauna found in this eco-region are well adapted to its extreme weather conditions.

This ecoregion is highly sensitive to grazing, soil disturbance and other cover alteration. Restoration potential can be very low, and regeneration is very slow. The introduction of non-native species may pose serious risk.

4.1 SITE FLORA

According to the Preliminary Site Assessment Report, the floristic community at the site is comprised of trees, dwarf shrubs, and annual/perennial herbs. The plant species recorded on site (Table below) are not of conservation value and most were not evaluated by the IUCN.

Common name	Scientific name	Status on IUCN Red List
Umbrella thorn	*Acacia tortilis*[9]	Least Concern (LC)
-	*Rhazya stricta*	Not evaluated
Onionweed	*Asphodelus fistulosus*	LC
Arabian boxthorn	*Lycium shawii*	LC
Bitter apple	*Citrullus colocynthis*	Not evaluated
Apple of Sodom	*Calotropis procera*	Not evaluated

4.2 SITE FAUNA

The following section is prepared based on the relevant information collected from different resources such as the National Centre for Wildlife's website, the National Strategy for Conservation of Biodiversity in the Kingdom of Saudi Arabia (Abuzinada et al., 2005), the IUCN Red List of Threatened Species, Birds of the Middle East by Richard Porter and Simon Aspinall (2013) and other available scientific publications. Findings of the Preliminary Site Assessment Report are also presented in the relevant sections.

4.2.1 MAMMALS

Small mammals such as Fat Sand Rat (Psammomys obesus), Lesser Egyptian Jerboa (Jaculus jaculus), and Dwarf Gerbil (Gerbillus nanus) are examples of some of the common and widespread mammals on the Arabian Peninsula and can be expected in Riyadh Province. These animals are considered as prey for small carnivores such as the Red Fox (Vulpes vulpes) and Rüppell's Fox (Vulpes rueppellii). These species of foxes are also widespread and can be expected in Riyadh Province. According to the Preliminary Site Assessment Report, camels, sheep, and goat, were seen onsite grazing on the local vegetation, as part of mobile livestock camps.

Saudi Arabia has a number of bat species, and according to the First National Report on the Convention on Biological Diversity, the country is home to 30 different species of bats. Widespread species include Egyptian Fruit Bat (Rousettus aegyptiacus), Geoffroy's Trident Leaf-nosed Bat (Asellia tridens), and Kuhl's Pipistrelle (Pipistrellus kuhlii).

4.2.2 BIRDS

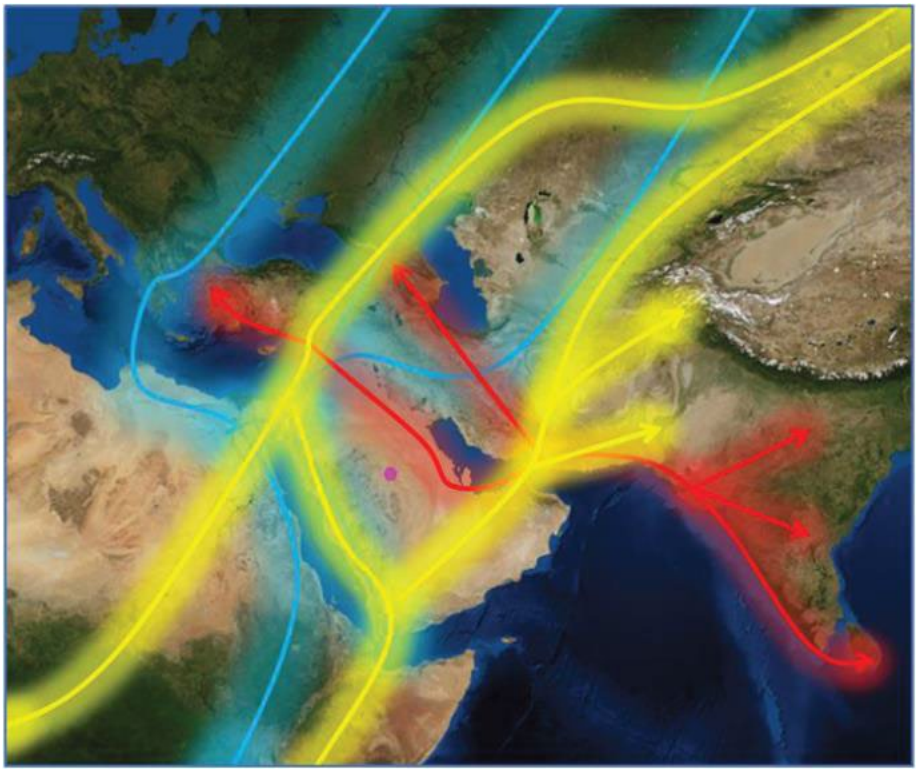
The peninsula is home to a plethora of bird species and an important stopover site for many migratory species. In Riyadh, resident birds include common and widespread species such as Rock Pigeon (Columba livia), Laughing Dove (Streptopelia senegalensis), Common Kestrel (Falco tinnunculus), Fan-tailed Raven (Corvus rhipidurus), Crested Lark (Galerida cristata), among others. Rawdat Al Sabla and the lake attract various species of birds such as Eurasian Hoopoe (Upupa epops), White-throated Robin (Irania gutturalis), and Greater Short-toed Lark (Calandrella brachydactyla). According to the Preliminary Site Assessment Report, some bird species were encountered during the site visit. These included the Crested Lark (Galerida cristata) and the Rock Dove (Columba livia) (Figure 38). These species are classified as Least Concern (LC) by the IUCN Red List. The farms, parks and green areas in the wider site region are expected to be attractive to many bird species in winter and spring.

Forty-three (46%) of the 93 species of migratory birds of prey listed in Annex 1 of the Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MOU) have been recorded in Saudi Arabia (CMS website, accessed August 2021). The country holds an internationally important breeding population of the Critically Endangered Lappet-faced Vulture (Torgos tracheliotos) and hosts several other threatened species of birds of prey both on migration and during the winter months.

4.2.2.1 MIGRATION

Twice a year, birds migrate vast distances across the globe. Typically, these journeys follow a predominantly north-south axis, linking breeding grounds in arctic and temperate regions with non-breeding sites in temperate and tropical areas. Many species migrate along broadly similar, well-established routes known as flyways. Figure below shows East Asia / East Africa birds flyway. The flyway is known to involve a broad corridor of movement, which is generally to the northeast in spring and to the southwest in autumn. This flyway has been described in literature (BirdLife International, 2010) although is not well known and is particularly ill-defined in KSA. Birds using this broad flyway are considered likely to occur within the Project area (Figure below – Yellow). A few hundred kilometres to the west of the site, another significant flyway extends from Europe to Africa called the Rift Valley / Red Sea Flyway (also known as the Black Sea Flyway) (Figure below – Blue). This corridor of migration is relatively well-defined and studied. The Central Asian Flyway has also been identified as another broad corridor of bird movement

which crosses from Europe into Asia (Figure below – Red). It is possible that birds using this flyway may also occur in the Project area. Importantly, there is significant general migratory bird movement throughout the Arabian Peninsula in spring (northwards) and autumn (southwards) which may also result in increased bird activity within the Project area during migration periods (Jacobs, 2021).



4.2.3 REPTILES

All of Saudi Arabia's seven native amphibian species are restricted to freshwater seeps and ephemeral pools. During the spring portion of the bird survey, 6 burrows and individuals of Egyptian spiny-tailed lizards (Uromastyx aegyptia) were noted on the project site (Table 34 and Figure 43). This reptile is a large species which is threatened with habitat loss, giving it a Vulnerable (VU) status on the IUCN Red List (IUCN Red List, August 2021).

5 ARCHAEOLOGICAL AND CULTURAL ENVIRONMENT

As the capital of the Kingdom of Saudi Arabia, the city of Riyadh has numerous cultural and historical sites. According to a 2018 brochure released by the Saudi Commission for Tourism, on the outskirts of Riyadh city is Historical Diriyah holding the ruins of the old city of Diriyah which lay on Wadi Hanifa. The buildings consist of mud-brick structures and are divided into three districts. At Turaif District is considered the most important political and historical site because it was the original home of the Saudi royal family and is a World Heritage Site (UNESCO, accessed March 2021). These sites are located over 200 km southeast of the Project site (Figure below).

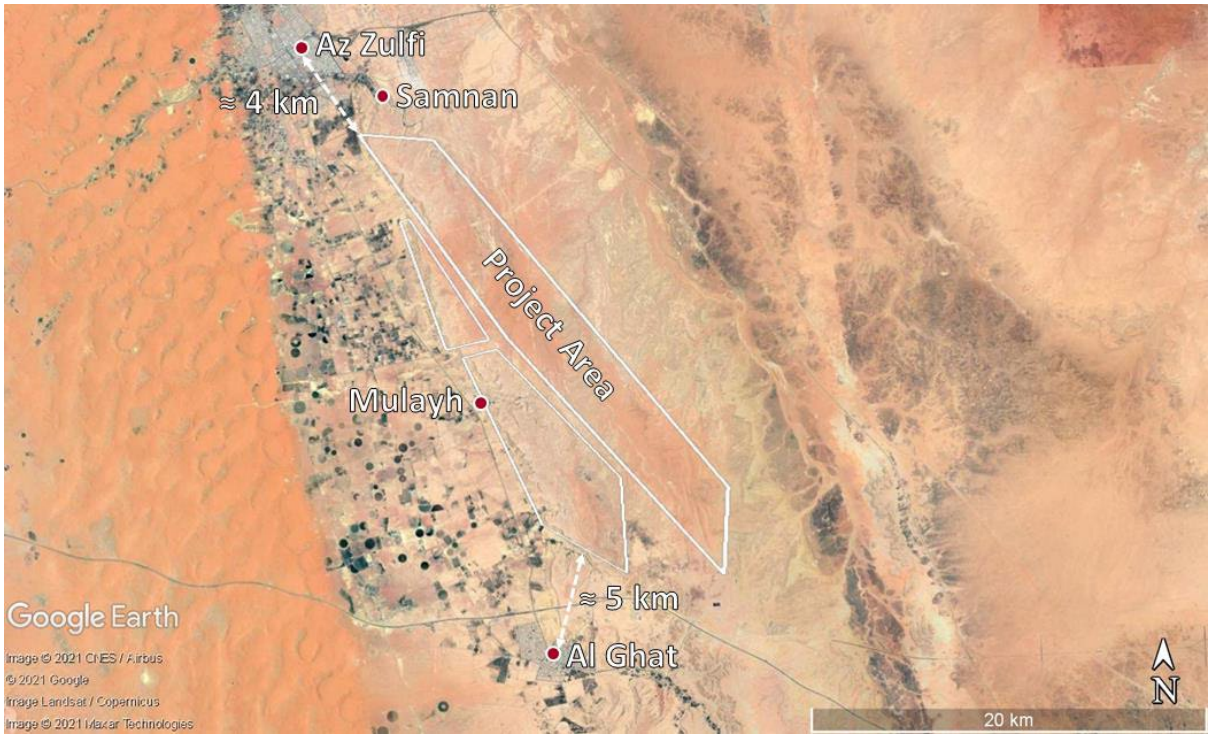
Al Ghat and Ushaiger are referenced as "Heritage Villages" in the Province, which combine natural scenes and ancient architecture and gives visitors the opportunity to experience Saudi

customs and traditions. The municipality has an ongoing project of renovating old mud-brick residences in Al Ghat and turning them into hotels (Arab News, accessed March 2021).

Archaeological surveys were conducted around Al Ghat in 2013 where Palaeolithic artefacts had been sampled at two localities, Jebel Samar and Jebel Markh. The surveys uncovered textual (written in Thamudic script) and iconographical material. These sites represent new evidence within the context of early human demography (Bretschneider et al., 2017). It should be noted that the closest site (Jebel Markh) is at a distance of about 10 km from the proposed Project boundaries.

6 RESIDENTIAL AREAS

The Project is located in Riyadh Province in a low polluted agricultural area, with vast farmed areas west of the site. Figure below shows the closest towns and villages around the Project area. The closest cities include Mulayh located within the boundaries of the Project area. Samna is about 2 km north of the Project area, while Az Zulfi is about 4 km north.



Al Ghat on the other hand is 5 km south of the Project boundaries. A number of isolated dwellings, usually surrounded by planted areas, are scattered throughout the vicinity of the proposed Project, along the wadi channels where water is provided by the rainy season. As previously mentioned, Az Zulfi industrial city is at less than 3 km north from the Project site.

7 MITIGATION OF IMPACTS DURING CONSTRUCTION

During construction, the contractor should ensure that no encroachment to the nearby land should occur and should follow the clearly defined transportation routes. Transport routes will be identified, and training will emphasize that employees should keep to the designated routes in order to protect the environment and reduce encroachment on adjacent land, reduce dust fall across the site due to the movement of trucks on undesignated sand tracks and also protect the visual aesthetics of the landscape. Construction activities should be limited to demarcated areas. A dust control plan and dust monitoring are necessary. Especially since construction will last for a long period, the site is recommended to be fenced with barriers at least as high as any uncovered stockpiles, to minimise dust mobilisation away from the site when dust generating construction activities are carried out in dry and windy conditions.

Emissions from the diesel generators that will probably be used for power generation on site during construction will be minimised by using low-sulfur diesel (<1.5%) as required by IFC General EHS guidelines (2007).

In line with IFC Performance Standard 8, If any sites of suspected archaeological value are found, a “chance find” procedure will be implemented during the construction phase of the Project, in order to identify any previously unrecorded archaeological sites or unidentified archaeological finds. The national regulations and requirements (e.g., Article 46 of the national Antiquities, Cultural Heritage and Museum Regime, the Saudi Commission for Tourism and Antiquities (SCTA)) will be strictly followed, as needed.

Construction and decommissioning traffic will be managed as per the requirements of IFC EHS Standard 3.0: Community Health and Safety and IFC EHS Standard 4.0: Construction and Decommissioning. This will minimize the potential for impacts to occur as a result of the Park.Occupational health and safety hazards during the construction, operation, and decommissioning of wind energy facilities are generally similar to those of most large industrial facilities and infrastructure projects. The project will follow the IFC EHS Guidelines for Wind Energy (2015) to ensure the health.

8 MITIGATION OF IMPACTS DURING OPERATION

Standard mitigation measures to reduce landscape and visual impacts would be adopted in order to minimize impacts on landscape and visual receptors. These would include all of the turbines having the same rotor diameter and hub height and turning in the same direction at broadly the same speed. Tubular steel towers reduce visual clutter and are preferred to lattice or pylon-like generator towers. Turbine transformers, in line with larger turbine designs, would normally be mounted within the machines to reduce visual clutter. If the transformers are external to the turbines, then an appropriate colour which diminishes their visual impact should be adopted in relation to the characteristics of the site and surrounding landscape. The turbines would all be a similar colour and finish so as to promote visual integration.

A detailed noise assessment for operation will be completed by the operator during the next phase of the development and based on the detailed engineering to assess the potential impacts and proposed the suitable mitigation measures as needed. It is also recommended to review the shadow flickering modelling according to the final layout of the proposed Project as part of the environmental impact assessment study that will be prepared for the operational phase to ascertain the extent of the effects (if any) on the population.

Wind turbines will be subject to continuous monitoring and regular maintenance such that the likelihood of blade throw is unlikely and rare.

Low wind speed curtailment (by raising the cut-in speed of wind turbines, and/or feathering turbine blades) has proven effective at reducing birds and bat mortality at wind farms. A slight increase in cut-in wind speed may have the potential to achieve significant reductions in bat fatalities. Operational mitigation measures (i.e., shutdown on demand) may be the most appropriate. This will be further assessed based on the detailed design on the proposed Project.

Active turbine management such as curtailment and shut-down on-demand procedures should be considered as part of the mitigation strategy at an early stage. This method of mitigation should be adaptive and guided by a well-developed post-construction monitoring program. Curtailment and shut-down on-demand measures should be first conducted as an experiment, with control turbines that are not curtailed and with both sets carefully monitored, to determine whether the curtailment is producing the desired fatality reduction. Technology-led turbine shut-down should be considered in certain cases, although any such system should be subject to a period of observer-led ground truthing and evaluation through a process of adaptive management.

Avoid artificially creating features in the environment that could attract birds and bats to the wind energy facility, such as water bodies, perching or nesting areas, novel feeding areas, and/or roosting habitats. Capping or fixing any cavities in walls or buildings helps to remove potential bat roosting sites.

It is recommended to avoid attracting birds to predictable food sources, such as on-site or off-site waste disposal areas. These measures may also need to be carried out in the surroundings of the wind park in order to be effective.

9 STAKEHOLDER ENGAGEMENT ACTION PLAN

This plan will provide all identified stakeholder groups and interested factions with a channel of communications between the stakeholder groups and the Project developer. The approach generally uses the different levels of engagement to provide more focused activities based on the level of significance of each stakeholder groups. For example, a Standard level of engagement can be achieved using disclosure, while a Moderate level can be achieved via consultation and engagement, and focused engagement can achieve a high level of engagement. The action plan included various engagement methods for the different proposed activities. The action plan also details some proposed grievance mechanisms for the project developer in order to monitor grievances and identify any recurrent issues, or escalating conflicts. Including but not limited to the following:

- Implementing a grievance mechanism and ensure the responsiveness of this mechanisms to concerns and complaints
- Receiving and logging all comments and complaints associated with the project
- Responding to such complaints and comments wither verbally or in writing

Lastly, the report emphasizes the importance of monitoring stakeholder engagement activities in order to ensure that the consultation and disclosure efforts are sufficient and effective throughout the process.

10PUBLIC CONSULTATION

Public consultation session took place on 4 August 2021. Due to COVID-19 pandemic restrictions, the meeting was held through means of video conference. The meeting was attended by representatives from different stakeholders including but not limited to:

- National Centre for Environmental Compliance (NCEC)
- National Centre for Wildlife (NCW)
- Ministry of Environment, Water and Agriculture (MEWA)
- Ministry of Tourism
- The Public Authority for Transport
- Ministry of Transport and Logistic Services
- Ministry of Municipal, Rural Affairs and Housing
- Saudi Railway Company
- Ministry of Defence
- Communications and Information Technology Commission (CITC)
- The Saudi Authority for Industrial Cities and Technology Zones (MODON)
- General Authority of Civil Aviation (GACA)
- Heritage Commission
- Saudi Ports Authority

During the session, the different Project aspects were discussed including but not limited to components as well as the potential positive and negative impacts of the Project. Attendees were supportive of the concept of the renewable energy program and the development of the proposed Project.

11 PROJECT JUSTIFICATION

The proposed Project has a number of significant positive impacts. A summary of the potential gains and losses associated with the Project is presented below in Table below.

Aspect	Gains	Losses
Environmental	• GHGs reduction (approximately 600875 metric tonnes of CO_2 per year) • Energy production from renewable resources	Limited negative impacts on the environment (e.g., increased noise levels) during construction and operation phases as detailed in Section 6.3. However, applying the proposed mitigation measures outlined in Section 7.1 will further minimize these impacts.
Social	• Energy production (525 MW) • Job opportunities creation during the different phases of the Project • Purchasing of materials, especially during the construction phase will have indirect positive impacts on the local community due to the improved economic conditions	Limited nuisance to the local community and onsite workers especially during construction phase is expected. However, these impacts are limited in duration and magnitude as well. More details are presented in Section 6.2. However, applying the proposed mitigation measures outlined in Section 7.1 will further minimize these impacts
Economic	• Purchasing of materials, especially during the construction phase will have direct positive impacts on the local economy • Power generation (approximately 525 MW)	Not applicable