Environmental and Social Management Plan (ESMP) Checklist

for 982.8 kWp/ 950 kWeSolar Power Plant of

Bozüyük Municipality

Date of Issue:May 8, 2025

Document History

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This document has been prepared by ÇA Engineering Company.

Environmental and Social Management Plan (ESMP) Checklist

Part 1: General Subproject and Site Information

1.a) General	
Associated ILBANK Project	Türkiye Public and Municipal Renewable Energy Project (PUMREP)
International Financial Institution (IFI) Financing the Project	The World Bank
Project's E&S Risk Classification according to WB ESF (2018)	Moderate
Subproject Title	Bozüyük Municipality 982.8kWp/ 950 kWeSolar(Photovoltaic) Power Plant (SPP)
Sub-borrowerName	Bozüyük Municipality
Responsible ILBANK Regional Directorate (RD)	ILBANK EskişehirRegional Directorate
Subproject's E&S Risk Classification according to ILBANK ESMS (2023)	Moderate
Subproject Location	**Province**:Bilecik **District**:Bozüyük **Neighborhood:**Yeni **Parcel/Block no**: 38/345
Scope of Subproject and Activity *(in case of any changes of the subproject please fill Appendix-12 and submit to ILBANK)*	**Technology (e.g. Photovoltaic, monocrystalline, polycrystalline, thin film, bi-facial, tracking system, etc.):**Photovoltaic **Installed power**: 982.8 kWp **Connection power**: 950 kWe **Annual electricity generation**: 1,388 MWh/ year **Construction Duration:**1.5 months **Operation Duration (Economic life of the Plant):** 25 years **Number of Construction Workers (at peak, including contractors and subcontractors):** 10 **Number of Operations Workers (at peak):** 2 **Planned accommodation:** Off-site (rented houses in nearby settlements, etc.)
Energy Transmission Line (ETL)	**Grid connection:**The connection to the transformer belonging to the distribution company will be made via the cadastral road and will cross parcels 345/40 and 345/17. Both parcels are owned by the BozüyükMunicipality.(See Appendix-3)**Energy transmission line (ETL)**:60 meters underground high voltage connection line 1) An ETL will be constructed. The technical information on the ETL is provided below: Length of the route: 60 m Voltage level: 34.5 (kV) Network connection will be made with a 60-meter undergroundenergy transmission line.

	 *Figure 1. Subproject ETL*
Access Roads	There is an access road to the subproject area. The existing road is sufficient for the transportation of equipment to the site.However, the last part of the road providing access to lot 38 of block 345 where the subproject activities will be carried out is a stabilized road that is not included in the zoning plan. This stabilized road will be closed and a new road will be constructed on the route determined as a road in the zoning plan. The new road will be opened approximately 15-20 meters west of the existing road.This road will not directly serve the subproject, but it is also used by nearby settlements for local access. Since the construction of the new road in question is not financed within the scope of the subproject, this activity is evaluated within the scope of the "Associated Facility". The existing road outside the new road will be sufficient for the transportation of the equipment. The access road passes through the settlement as seen in settlement Figure 2 and the necessary measures to manage the effects of this situation are detailed in the Environmental and Social Management Plan (ESMP) matrix.

	 *Figure 2. Subproject Access Road*
Other Associated Facilities: Are there any other associated facilities that are not funded as part of the Subproject and are (a) directly and significantly related to the Subproject, (b) carried out, or planned to be carried out, contemporaneously with the Subproject, and(c) necessary for the Subproject to be viable and would not have been constructed, expanded or conducted if the Subproject did not exist?	The construction of a access route that is directly and substantially related to the subproject is an Associated Facility.
Existing Permits	The subproject is not listed in the Annexes of EIA Regulation and subprojectit was determined that the subproject is outside the scope of EIA Regulation with the official letter numbered E-42903529-220.03-10771944regarding the capacity and the size of the subproject area. With the Bozüyük Municipality Council Decision dated 05.07.2024 and numbered 42, there is a letter of conformity for the plan change as the Yeni Neighborhood lot 345 of block 38 Renewable Energy Resources Based Production Facility Area. See **Appendix-2**
1.b) Site Description	
Subproject Area	The parcel has an area of 11,219m^2 and 11,000m^2 will be used for the subproject area. Number of parcels to be used: Subproject 1 lot (38/345), ETL 3 lots (38/345, 40/345 and 17/345) Total title deed area of the parcel:11,219m^2 Total area to be used by the Subproject (within the fence area): 11,000m^2 **Appendix-1:** Site Map **Appendix-4:** Photolog
Who owns the land? Since when?	As of 10.04.2012, the ownership of the land ownership belongs to Bozüyük Municipality. **Appendix-3**: Title Deeds
Land Registry Type	Plot

according to Title Deed (agricultural, pasture, vacant, etc.)	
Current Land Use (are there any formal or informal agricultural users, herders, etc.)	There are gazebo and coops areas belonging to citizens in the subproject area. Bozüyük Municipality met with the citizens regarding this issue and it was agreed that the pergola and coops would be moved to a more suitable location with the support of the municipality. Pergola and coops were duly moved andphotos of the old and new locations of pergolas and chicken coops were shared on Appendix-12. Coops and pergolas to be moved. Apart from this situation, there are no official or unofficial users in the subproject area.
Other Nearby Facilities and Activities Are there other industrial or commercial activities operated/operating or planned by the Sub-borrower itself or other public or private third-parties in the vicinity of the Subproject or its components/associated facilities?	There are no other industrial or commercial activities operated/operating or planned by the Bozüyük Municipality itself or other public or private third-parties in the vicinity of the subproject or its components/associated facilities.
Area of Influence	The Area of Influence (AoI)was determined based on the environmental and social impacts associated with the subproject components, including the subproject site, the Power Transmission Line (ETL) route and access roads.The transportation route passes in front of the neighborhood and does not intersect with sensitive structures such as health and school. Therefore, no traffic impact is expected during transportation to the site and equipment transportation. Within the subproject site, a footpath currently used by part of the local population is located. The new road, planned approximately 15–20 meters west of the current footpath according to the zoning plan, will replace the existing path. Consultations were held with the local people using the footpath to inform them about the subproject activities and the construction of the new road. To avoid disruption, the existing path will not be closed until the new road is fully constructed and operational. In addition, a cage and a gazebo located within the subproject site, owned by local residents, have been voluntarily relocated to new sites agreed with the owners. The individuals who use the footpath and those owning the cage and gazebo are expected to experience relatively greater impacts compared to the general public. Therefore, official minutes were signed with these individuals to document their voluntary agreement to the relocations. The signed minutes are provided in Appendix-13. Minutes Within the scope of the subproject activities; dust emissions are expected to be limited within a 50-meter radius. The nearest sensitive structures are residential houses located approximately 25–30 meters from the subproject site. Considering this distance, these households are expected to be affected by dust emissions. Emissions from vehicle operations have also been calculated and were found to be significantly below the limit values. Calculation details are given in Appendix-11. Emissions and Environmental Noise Calculations Mitigation measures related to these impacts are detailed in the ESMP matrix. Another factor considered in determining the Area of Influence (AoI) is noise. During the construction phase, environmental noise levels are anticipated to fall below IFC noise limits beyond a distance of 200 meters. This estimate is based on a conservative scenario where all machinery operates simultaneously and continuously throughout the work hours. However, in practice, machinery will operate at different times and not continuously throughout the working day. Therefore, the actual noise levels are expected to be considerably lower. Noise related precautions are given in the ESMP

	Matrix. During the site visit, 7 people living around the subproject area and the mukhtarof Tekke neighborhood were interviewed, and the environmental and social risks of the subproject were explained and their opinions, suggestions and concerns regarding the subproject activities were asked(See Appendix-14. Site Visit Images). In addition to not detecting any negative opinions, the communication channels to be used in case of any complaints were provided. There are no sensitive structures such as schools or health facilities on the ETL route.It will leave the ETL subproject area, pass through lot 345 of block 40 via the cadastral road and connect to the transformer belonging to the distribution company located in lot 345 of block 17.The transmission line will exit the sub-project site boundary, pass through the cadastral parcel, and connect to the transformer located on Lot 17 of Block 345. This connection will be carried out within the scope of the sub-project and will be made to the existing transformer owned by the distribution company.  *Figure 3. Subproject AoI*
Description of geographic and physical characteristics as appropriate.	The planned solar power plant will be located in Yeni neighborhood of Bozüyük, a rural inland area that benefits from high solar radiation and is a suitable area for solar energy production. The gently sloping topography of the land is adjacent to small-scale rural settlements. Since the subproject site is located in the southeast of the Marmara Region, it has both the temperate climate of Marmara and the continental climate of Central Anatolia. In addition, the existing infrastructure, including road connections and power grids, facilitates the integration of solar energy into the local grid by supporting renewable energy projects. According to the data obtained from the Türkiye Earthquake Hazard Maps Interactive Web Application for the subproject area, the PGA 475 (g) value was determined as 0.303 g. This value indicates a horizontal peak ground acceleration (PGA) value with a return period of 475 years. The PGA value of 0.303 g indicates that the region is at a high level of seismic hazard. In this context, appropriate engineering measures should be taken for construction and infrastructure projects.

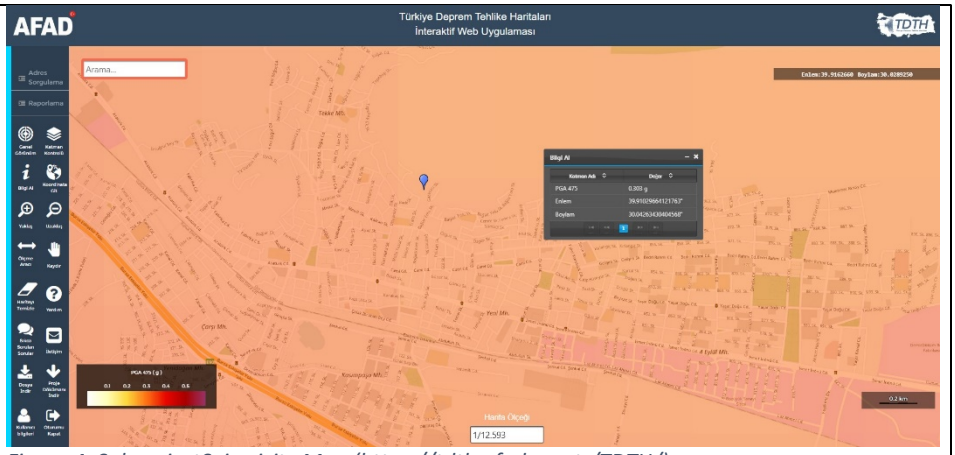


Figure 4. SubprojectSeismicity Map (https://tdth.afad.gov.tr/TDTH/)

Description of biological characteristics as appropriate.	Although SPP projects generally have low environmental impact, detailed ecological assessments are made during site selection in order not to harm biodiversity. Literature and field studies were carried out by ÇA Engineering Agricultural Engineer to determine the flora and fauna species present or likely to be present within the subprojectarea of influence. ***1. Flora*** Literature and field studies were conducted to determine the flora and fauna species found or likely to be found in the subprojectarea of influence. The flora species found in the subprojectarea of influence were identified as *Verbascum thapsus*, *Veronica*. No endangered or endemic plant species were encountered in the subproject area within the scope of the studies conducted in the subproject area. In this context, the books "Flora of Türkiye and East Aagean Island (1965-1988)" and "Red Data Book of Turkish Plants" prepared by P. DAVİS were used. In addition, the databases prepared by TÜBİTAK "http://bioces.tubitak.gov.tr" and Türkiye Plants Data Service – TÜBİTAK: "http://wwweski.tubitak.gov.tr/tubives/" were scanned and checked for endangered species by providing literature support. There are no rare, endangered or protected plant species in the subprojectarea of influence according to Annex 1 of the Bern Convention. There are two trees within the borders of the subproject area. One of these trees is a wild tree and the other is a willow tree. These trees are being cut down. Instead of the trees that are removed, the Municipality will plant trees in another area. The commitment regarding this issue has also been shared in Appendix-15. Trees' Commitment Letter ***2. Fauna*** The fauna list based on field work and literature review in the immediate vicinity of the subprojectarea of influence is given below. In literature studies; Mustafa Kuru's 'Vertebrate Animals', A. Demirsoy's 'Türkiye Vertebrates – Mammals, Amphibians', İbrahim Baran's 'Türkiye Amphibians and Reptiles', İ. Kiziroğlu's (2008) 'Türkiye Birds Red List' (Species List in the Red Data Book) were used. Wildlife species and other species protected under the Bern Convention are not affected by activities such as hunting, deliberate killing, captivity or destruction of their eggs. The activities in question will comply with the decisions of the Central Hunting Commission of the Ministry of Agriculture and Forestry for 2024-2025 and the provisions of the Bern Convention. As a result of the flora and fauna surveys conducted in the subprojectarea of influence and consultations with the local people, species such as the European rabbit (*Lepus europaeus*), marten (*Martes foina*) and badger (*Meles meles*) were observed in natural habitats among mammals in the subprojectarea of influence. In terms of bird species, it was determined that species such as hawk (*Buteo buteo*), falcon (*Falco peregrinus*), owl (*Strixaluco*), stork (*Ciconia ciconia*) and quail (*Coturnix coturnix*) were common in the region. In addition, it was determined that species such as lizard (*Lacerta spp.*) and turtle (*Testudo graeca*) maintained their habitats in this region within the scope of reptile and amphibian species. In this context, no species that are definitely protected under the BERN Convention have been encountered. Although species that are allowed to be hunted for certain periods by the

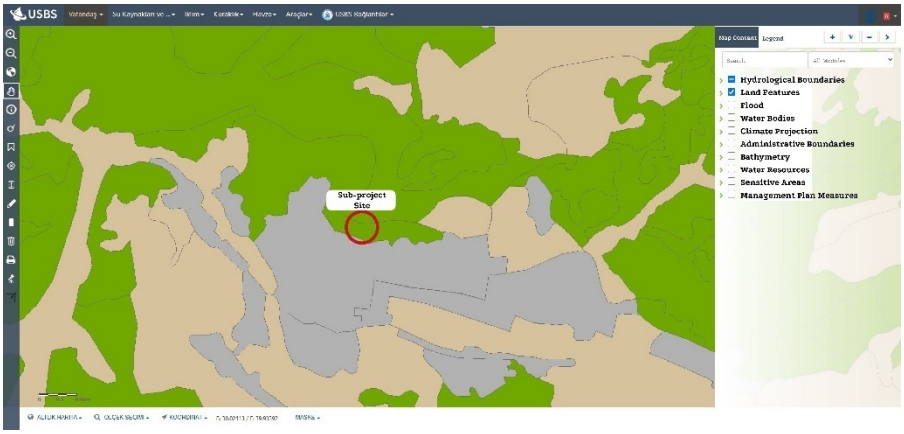
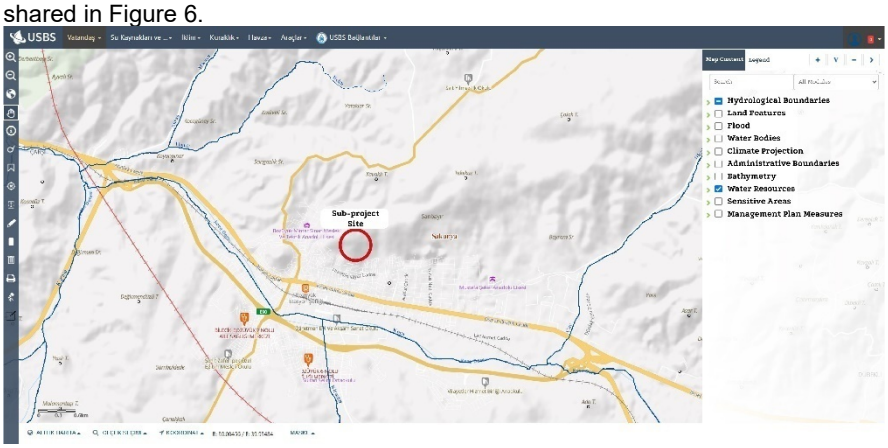
	decision of the Central Hunting Commission have been identified, these species are not within the subprojectarea of influence but in the immediate vicinity. It is not expected that the activities to be carried out within the scope of the filling activity subject to the subproject will have a negative impact on these species. However, within the scope of the subproject, necessary measures will be taken to protect wildlife in line with the Land Hunting Law No. 4915 and the decisions of the Central Hunting Commission held every year. In the subproject area; National parks, nature parks, nature monuments, nature conservation areas, wildlife conservation areas, wild animal breeding areas, cultural assets, nature assets, protected areas and conservation areas, special environmental protection zones, biogenetic reserve area, biosphere reserve special protection areas, afforested areas, potential erosion and afforestation areas, protection areas related to drinking and utility water resources, densely populated areas, historical, cultural, archaeological and similar areas of importance, tourism regions and other protected areas; were not encountered in the database used as a source and in other research. There are no nationally protected and internationally recognized high biodiversity value areas in the subprojectarea of influence. Also, there are no World Heritage Nature Reserves, Biosphere Reserves, Ramsar Wetlands of International Importance, Important Biodiversity Areas or Important Bird Areas. Furthermore, field surveys and desktop studies confirmed that there are no critical habitats, endemic or endangered species or ecologically sensitive areas in the subproject vicinity.
Description of geological and hydrographic characteristics as appropriate.	The selected subproject site's geological and hydrographic characteristics play a crucial role in assessing the feasibility and sustainability of the solar power plant. The geological conditions, including soil composition, bedrock stability, and seismic activity, influence the foundation design and construction process. Additionally, hydrographic features such as surface water bodies, groundwater levels, and drainage patterns are evaluated to ensure minimal impact on local water resources. This section provides an overview of the site's geological and hydrographic attributes, highlighting any relevant environmental considerations for the subproject development. **1. <u>Geology</u>** The geological structure of Bozüyük has a complex structure consisting of rock types belonging to different periods. Metamorphic rocks are especially exposed in the northern parts of the region and consist of rocks such as gneiss, schist, marble and amphibolite. Sedimentary and carbonate units belong especially to the Mesozoic-Cretaceous Period and limestone, sandstone, claystone and shale are common in the region. Carbonate formations, especially in the northern and eastern regions, allow the development of karst structures. Sediments belonging to the Neogene Period (Miocene-Pliocene) generally consist of formations containing clay, sand and gravel formed in lacustrine and fluvial environments and are especially common in plain areas. These units contain soils important for agriculture. Quaternary deposits are characterized by current active river beds and alluvial deposits. The gravel, sand and silty materials carried by the Sakarya River and its tributary streams accumulate in river valleys and plains, shaping the geomorphological structure of the region. As can be seen in subproject area , there is natural vegetation formation. 

	Figure 5. Subproject Site Geology Map **2. <u>Hydrographic characteristics</u>** The closest surface water source to the subproject area is KocaRiverin the south of the subproject area. The distance of KocaRiver to the subproject area is approximately 900 meters on the north of the subproject area. According to the National Water Information System; there is no underground water source in the subproject area. Considering the seasonal flow changes of the river bed, there is no risk of flooding, especially during rainy periods. The map showing the closest water source to the subproject area is shared in Figure 6.  *Figure 6. Subproject Site Water Resources Map (Ministry of Agriculture and Forestry National Water Information System)*
Description of socio-economic characteristics as appropriate.	According to the survey studies conducted during the field visit, when the general socio-economic structure of Yeni neighborhood where the subproject activities will be carried out was examined, it was determined that the subproject mainly earns its living from agriculture and animal husbandry, public and private sectors. This situation has caused the local workforce to increase over the years. According to TurkStat data, the population, which was 17,024 in 2023, increased by approximately 0.5% in 2024 to 17,109 people. The activity in question will create employment in the region and ensure the effective use of the country's resources, and together with the personnel who will work within the scope of the subproject, it will contribute to the increase in the level of socio-economic development in the region. It is planned to employ 10 people in the short term during the construction phase. It is planned to employ the employees in the construction, electrical-electronics and energy sectors. It is planned to employ 2 personnel in the long term during the operation phase. Employment opportunities will be provided in the electrical-electronics and energy sectors during the operation phase. Employment within the scope of the subproject will primarily be provided from the local people. With the necessary workforce, employment and job opportunities will increase in the region, and the economic structure of the region will benefit in the short, medium and long term by providing the necessary materials for the operation from the region. During the construction phase, the necessary personnel for jobs that do not require special skills will be provided by the local people. Since it will be preferred to prefer authorized regional stations for mechanical equipment, vehicle maintenance and repair works, meeting the food needs from the region, etc., the surrounding settlements and the city center will contribute both directly and indirectly in terms of socio-economics.
If relevant, provide information about the affected settlements.	Closest settlement(s): - Yenineighborhood (with 17,109population, according to TurkStat, 2024) Closest structure(s) to the Subproject site: - There are residences approximately 30-35 meters away from the subproject area.
Locations and distance to nearest sensitive receptors such as health care units, schools?	The nearest sensitive receptor is a primary school located 200 meters south of the subproject site.

Infrastructure services to be used during the life cycle of the subproject (sewage, electricity, water network, etc.)	Due to the subproject location, electricity, water will be supplied from the current infrastructure networks. No need to construct/renew infrastructure services due to subproject activities.

1.c) E&S Requirements applicable to the Subproject

The subproject will be implemented in line with requirements of applicable national legislation and international agreements and conventions to which Türkiye is a party of.

The following international standards will also be followed as applicable:

- ILBANK Environmental and Social Management System (ESMS)
- WB Environmental and Social Framework (ESF, 2018) and the Environmental and Social Standards (ESSs) forming part of the ESF
- Good International Industry Practices (GIIPs) including but not limited to WB Group (WBG) General and Industry Sector Environmental, Health and Safety Guidelines[1] (EHSGs)
- International Finance Corporation (IFC) ESMS Implementation Handbook

In cases where the requirements of the ILBANK ESMS or national legislation differ from those of the WB ESSs or the levels and measures presented outline in the relevant WBG EHS guidelines, the more stringent standard will apply.

Part 2: Implementation Arrangements

2.b) Implementation Responsibility and Resources

The sub-borrower shall implement and cause the contractor to be adopt and implement this ESMP Checklist satisfactory to ILBANK throughout the sub-financing agreement life cycle.

The sub-borrower is responsible for ensuring that adequate financial and human resources are allocated for the effective implementation of this ESMP Checklist.

Roles and Responsibilities are provided in Appendix-8. Roles and Responsibilities

2.c) Organizational Capacity

Sub-borrower:

The sub-borrower shall establish an organizational structure (Project Implementation Unit – PIU) with qualified staff and resources to the satisfaction of ILBANK and maintain it by ensuring that there is qualified staff assigned and serving on the duty throughout the sub-financing agreement life cycle.

The sub-borrower assigns the following personnel to support management and monitoring of subproject E&S risks and impacts and ensure full compliance with the requirements of this ESMP Checklist:

- **Environmental Focal Point:** Environmental Engineer, 12 years
- **Social Focal Point (**(who will also act as the Grievance Mechanism (GM) Focal Point)**:**Social Services Expert, 10 years
- **Occupational Health and Safety (OHS) Specialist:**OHS Expert, 10 years, A class

Contractors:

The sub-borrower shall obligate awarded contractors to establish and maintain throughout the contract duration an organizational structure with qualified staff and resources.

This shall be achieved through assigning the following personnel under the contractor's organization prior to commencement of works:

- **One (1) Environmental Specialist:** Please insert name-surname, position/title, length of professional experience
- **One (1) Social Specialist:** Please insert name-surname, position/title, length of professional experience
- **One (1) Occupational Health and Safety (OHS) Specialist:**Please insert name-surname, position/title, length of professional experience, expertise class

The sub-borrower shall in writing notify ILBANK of the assigned contractor personnel prior to commencement of works.

2.d) Grievance Mechanism (GM)

The grievance mechanism of the subproject shall be implemented in line with the ILBANK's Grievance Mechanism which is available atthe official İLBANK website[2]

[1] https://www.ifc.org/en/insights-reports/2000/general-environmental-health-and-safety-guidelines

The sub-borrower shall require the contractors to prepare notification board/sign and post them at or around the worksite prior to commencement of works. The board/sign will include contact details for public to raise their subproject-related grievances and feedback.

The grievances shall be recorded by the sub-borrower, construction supervision consultant and the contractor, and submitted to ILBANK weekly.

Sensitive complaints[3] will be reported to WB within 48 hours following the grievance received by ILBANK.

2.e) Monitoring and Reporting

The sub-borrower shall promptly notify ILBANK of any incident or accident related to the subproject which has, or is likely to have, a significant[4] adverse effect on the environment, the affected communities, the public or workers, including, inter alia, cases of sexual exploitation and abuse (SEA), sexual harassment (SH), and accidents that result in death, serious or multiple injury.

This notification shall be done by using ILBANK's E&S Incident Notification Form template (see Appendix-6. E&S Incident Notification Form).Completed E&S Incident Notification Form shall be submitted to ILBANK by the sub-borrower within **48hours**ofthe incident or accident (contractor shall notify the sub-borrower within **24 hours** of the incident or accident).

The periodic E&S monitoring reporting requirements for the subproject is as follows:

- Construction contractor will prepare **monthly**E&S monitoring reports (ESMRs)and submit to supervision consultant ("*müşavir*").
- During the **construction** phase, the sub-borrower, with support from supervision consultant, will prepare **quarterly** ESMRs and submit to ILBANK.
- During the **operation** phase (throughout sub-financing agreement lifecycle, until the completion of repayment period), the sub-borrowerwill prepare **annual** ESMRs and submit to ILBANK.

ILBANK will provide the sub-borrower with the required template for the periodic ESMRs.

The Roles and Responsibilities are provided in Appendix-8. Roles and Responsibilities.

[2] https://www.ilbank.gov.tr/userfiles/files/Grievance_Mechanism.pdf

3 Sensitive complaints could include the following (not an exhaustive list): 1) Sexual exploitation and/or any type of abuse by a staff member; 2) Fraud and/or corruption by a staff member, such as involvement in bribery or misusing funds; 3) Any action which constitutes a breach of ILBANK code of conduct including staff behavior..

[4] Any incident or accident relating to the subproject which has, or is likely to have, a significant adverse impact on the environment and/or health and safety of communities or employees (direct or contracted) involved in the subprojects related operations will be considered significant, including, inter alia, chemical and/or hydrocarbon materials spills; fire, explosion or unplanned releases, including during transportation; ecological damage/destruction; traffic or other type of accidents that could result in fatalities or serious injuries affecting employees and/or public complaint or protest; failure of emissions or effluent treatment; legal/administrative notice of violation; penalties, fines, or increase in pollution charges; negative media attention; chance cultural finds; labor unrest or disputes; local community concerns.

Part 3: ESMP Matrix: Risk and Impacts, Mitigation and Monitoring

3.a) Construction ESMP Matrix

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
Labor and Working Conditions				
1.	Working Conditions	Construction workforce Employees	• Conduct daily toolbox talks covering the OHS Plan and labor conditions. • Develop and implement a subproject-specific simplified Labor Management Procedure (SLMP, see Appendix-7. Simplified Labor Management Procedure) to ensure compliance in recruiting and managing all employees. • Enforce strict prohibition of child labor, forced labor, and unregistered labor as per SLMP requirements. • Workers will be provided with documented information that is clear and understandable regarding their rights under national labor law, including collective agreements, and their rights related to hours of work, wages, overtime, compensation, and benefits at the start of the working relationship and whenever any material changes occur.• Recruitment procedures will comply with national labor legislation and ESS2, and an accessible grievance mechanism for workers will be implemented and maintained. • For non-routine work, a risk assessment must be made before the job. A work permit procedure must be implemented.	Bozüyük Municipality Supervision Consultant Contractor
2.	General OHS risks	Construction workforce	• Develop a comprehensive **risk assessment document** for subproject, addressing specific risks and defining mitigation measures. • Ensure that all employees, including subcontractors, receive necessary OHS training covering identified risks. • Prepare subproject management plans, including Safe Work Procedures and an **Emergency Response Plan**. • Enforce safety procedures and provide appropriate PPE to all employees. • Incorporate job-specific safety procedures and requirements in OHS training programs. • Emergency scenarios should be determined for all risks and every employee should receive training on these scenarios. • Prepare machine and operation specific “Safe Working Procedures” for all safety critic equipment and machinery and notify all workforce by signature. • Serious safety issues that may arise with primary suppliers and primary supply workers will be managed as described in the Occupational Health and Safety Sub-Management Plan, which will cover primary supply workers to the extent necessary. • Written contracts will be provided to subcontractors, setting out detailed job descriptions, rights and obligations, and a Code of Conduct. • In case of OHS accidents resulting in loss of life, loss of limbs or eyes, or	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			temporary incapacity for work lasting more than 72 hours, the Contractor shall immediately notify the Social Security Institution(within 24 hours) and follow up by filling in the Environmental and Social Reporting Template (ESRT) forms in accordance with the instructions of ILBANK. This process shall also include root cause analysis and corrective action plan.	
3.	Physical Hazards: Lifting Operations OHS Risks	Construction workforce	• Ensure that lifting area will be enclosed with fence to prevent access to the lifting area during lifting work. • Ensure that warning signs will be installed for lifting activities • Ensure that safety procedures will be used for lifting operations. • Ensure that lifting work will be carried out by well trained, qualified, and certified lifting team and with proper communication means and flag man. • Ensure that workers will be provided with all necessary PPE and safety materials. • Ensure all equipment used for lifting operations including slings, chains and hooks are checked technically and records are kept according to local safety legislation. • Ensure that tools are selected and designed that reduce force requirements and holding times and improve postures. • Ensure that user-adjustable workstations are provided. • Ensure that rest and stretch breaks are incorporated into work processes and job rotation is in place. • Ensure that quality control and maintenance programs are in place to reduce unnecessary forces and effort, and personnel are trained in proper manual handling techniques. • Ensure that additional special circumstances, such as left-handed people, are considered.	Bozüyük Municipality Supervision Consultant Contractor
4.	Physical Hazards: Rotating and Moving Equipment	Construction workforce	• Design machines to eliminate trap hazards and ensure that extremities are kept out of harm's way under normal operating conditions; i.e. availability of emergency stops dedicated to the machine and placed in strategic locations; • If a machine or equipment has an exposed moving part or an exposed pinch point that could endanger the safety of any worker, ensure that the machine or equipment is equipped with and protected by a guard or other device that prevents access to the moving part or pinch point. Guards should be designed and installed in conformance with appropriate machine safety standards; • Ensure that machinery with exposed or protected moving parts or in which energy can be stored (e.g. compressed air, electrical components) is turned-off, disconnected, isolated and de-energized (Locked Out and Tagged Out)	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			during service or maintenance; • Where possible, ensure that equipment is designed and installed to enable routine servicing, such as lubrication, to be carried out without removing guarding devices or mechanisms.	
5.	Physical Hazards: Electrical Hazards	Construction workforce	• No one without a valid certification on vocational training on electricity will be allowed to work on electrical installations. • Ensure that all energized electrical devices and lines are marked with warning signs; • Ensure that the devices are locked (de-charging and leaving open with a controlled locking device) and labeled (warning sign placed on the lock) during service or maintenance; • Ensure that all electrical cords, cables, and hand power tools are checked for frayed or exposed cords. Also, ensure that the manufacturer's recommendations for the maximum permitted operating voltage of portable hand tools are followed; • Insulating mats should be placed under electrical panels, including portable panels. • Ensure that portable electrical appliances are “portable electrical appliance tested (PAT)” • Ensure that all electrical equipment used in environments that are or may be wet is double insulated/grounded; use equipment with ground fault interrupter (GFI) protected circuits; • Ensure that power cords and extension cords are protected against damage from traffic by shielding or suspending above traffic areas; • Ensure that high-voltage equipment ('electrical hazard') and service rooms where access is controlled or prohibited are properly labeled; • Ensure that "No Approach" zones are established around or under high voltage lines; • Ensure that construction vehicles or other vehicles with rubber tires that come into direct contact with or arc across high-voltage cables are taken out of service for 48 hours; • Ensure that all buried electrical cables are thoroughly identified and marked prior to any excavation work. • Ensure that special training programs are organized for employees on electrical hazards and safety precautions. • Ensure that rapid response teams and emergency plans are established for electrical accidents. • Ensure that regular electrical safety inspections are conducted in the subproject area. • Ensure that periodic inspections are conducted to ensure that employees use	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			appropriate personal protective equipment (PPE).	
6.	Physical Hazards: Welding and Hot Works	Construction workforce	• Ensure that appropriate eye protection, such as welder's goggles and/or a full-faceshield, and respiratory protectionis provided for all personnel involved in or assisting with welding operations; • If welding or hot cutting is performed outside of established welding work stations, ensure that special hot work and fire prevention precautions and Standard Operating Procedures (SOPs) are in place, including "Hot Work Permits, stand-by fire extinguishers, fire blanket,stand-by fire watch and maintaining fire watch for up to one hour after welding or hot cutting is finished"; • Ensure that areas where welding or hot work is performed are cleared of flammable materials (e.g. fuel, solvent, spark-ignitable materials) and should be checked regularly. • Ensure that all employees are trained and informed about welding operations and the safe management of hot work. • Ensure that welding work is only carried out by employees who have the appropriate professional qualification (aluminum, steel, resistance etc.)	Bozüyük Municipality Supervision Consultant Contractor
7.	Fire Safety Prevention Measures and Emergency Response	Construction workforce Flora and fauna Soil, water resources	• Prepare an Emergency Response and Evacuation Plan before the commencement of works. • Ensure all employees are trained for their responsibility to report dangers and fire fighting measures • Ensure that all flammable and hazardous materials are stored in designated, secure areas away from ignition sources. • Ensure firefighting systems and equipment are available • Ensure fire and emergency drills are conducted regularly. • Designate trained fire wardens for each area to lead evacuations and coordinate with emergency responders. • Keep an up-to-date list of emergency contacts, including local fire departments and hospitals, for quick access in case of fire. • Ensure the numberof trained first-aiders is in accordance with workplace hazars class as specified in the First Aid Regulation. •	Bozüyük Municipality Supervision Consultant Contractor
8.	Physical Hazards: Ergonomics, Repetitive Motion, Manual Handling Lifting	Construction workforce	• Establish clear weight limits for manual handling tasks and label heavy loads accordingly; • Ensure that mechanical assists are used to eliminate or reduce the effort required to lift materials, hold tools and work objects, and that more than one person is lifting if weights exceed thresholds; • Ensure that tools are selected and designed that reduce force requirements and holding times and improve postures; • Ensure that user-adjustable workstations are provided;	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			• Ensure that rest and stretch breaks are incorporated into work processes and job rotation is in place; • Ensure quality control and maintenance programs are in place that reduce unnecessary forces and effort; • Ensure that additional special circumstances, such as left-handed people, are considered. • . Whether a new employee can carry heavy loads should be determined during a health check by the workplace doctor. Make sure that these jobs are performed by people who are approved.	
9.	Physical Hazards: Industrial Vehicle Driving and Site Traffic	Construction workforce	• Ensure that industrial vehicle operators are trained in the safe use of specialized vehicles such as forklifts, including safe loading/unloading, load limits; • Make sure that they have a certificate of competence (driver's license, operator's certificate, etc.) from authorized institutions and organizations according to the type of work machine. • Make sure drivers undergo medical supervision; • Ensure that moving equipment with restricted rear visibility is equipped with audible back-up alarms; • Ensure that rights of way, site speed limits, vehicle inspection requirements, operating rules and procedures and control of traffic patterns or direction are established; • Ensure that deliveries and movement of private vehicles are restricted to defined routes and areas, with 'one-way' movement preferred where appropriate.	Bozüyük Municipality Supervision Consultant Contractor
10.	Physical Hazards: Chemical Hazards	Construction workforce Flora and fauna Soil, water resources	• Ensure that the hazardous substance is replaced with a less hazardous substitute; • Ensure that engineering and administrative control measures are in place to prevent or minimize the release of hazardous substances into the working environment, keeping the exposure level below internationally established or recognized limits; • Ensure that the number of workers exposed or likely to be exposed is minimal; • Ensure that chemical hazards are communicated to workers through labeling and marking according to nationally and internationally recognized requirements and standards, including International Chemical Safety Cards (ICSC), Safety Data Sheets (SDS/SDSs) or equivalent. Any means of written communication should be in an easily understood language and be readily available to exposed workers and first-aid personnel; • Ensure that employees are trained in the use of available information (such as MSDSs/SDSs), safe working practices and proper use of PPE. • Ensure workers have access to suitable personal protective equipment (PPE), such as gloves, respirators, goggles, and protective clothing, based on the	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			specific chemical hazards. • Store hazardous substances in designated areas with appropriate ventilation, labeling, and secure containment to prevent accidental exposure or spills. • Provide chemical overflow pallets and store chemical containers by placing them on them. • Develop and implement a spill response as a part of Emergency Response Planincludes containment measures, chemical spill/leak response drills, cleanup procedures, hazardous substance disposal and emergency contact information. • Dispose of chemical waste according to regulations to prevent environmental contamination and worker exposure. • Regularly inspect and maintain chemical handling equipment, storage areas, and PPE to prevent leaks or accidental releases.	
11.	Gender-Based Violence (GBV); Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) on Employees; Gender Inequality	Construction workforce	• Provide GBV and SEA/SH awareness sessions for the management teams of the construction contractor and consultants to promote understanding and accountability. • Conduct regular awareness meetings with workers to educate them on GBV and SEA/SH issues and the importance of respectful workplace conduct. • Ensure all workers receive training on recognizing, preventing, and responding to GBV and SEA/SH incidents. • Require all workers to review, sign, and adhere to a Code of Conduct that explicitly addresses unacceptable behaviors related to GBV and SEA/SH. • Implement a confidential and accessible grievance mechanism specifically designed to capture and address GBV and SEA/SH-related complaints in a timely manner.	Bozüyük Municipality Supervision Consultant Contractor
Resource Efficiency and Pollution Prevention and Management				
12.	Waste Management - General	Communities Construction workforce Flora and fauna Soil, water resources	• Separate waste at the source into waste categories determined in Waste Management Regulation, establish temporary waste storage area • Place labeled bins for each type of waste at strategic locations on-site to ensure correct disposal by workers. • Implement practices to reduce waste generation by optimizing material use and reusing materials where possible. • Contract with local recycling facilities to ensure that recyclable materials (e.g., metals, paper, plastic) are properly processed. • Store waste in designated, secured areas to prevent littering, leaching, and environmental contamination. • Use leak-proof containers for hazardous or liquid waste and ensure they are adequately labeled. • Contract with licensed waste disposal companies to handle non-recyclable and hazardous wastes in accordance with Waste Management Regulation.	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			• Track and document the disposal process to ensure compliance and accountability. • Conduct regular awareness sessions and training for workers on waste reduction techniques, proper disposal practices, and the importance of waste management. • Regularly monitor waste management practices, conduct site inspections, and assess waste volumes to identify areas for improvement. • Establish a reporting system to document waste types, quantities, and disposal methods. • Develop a comprehensive waste management plan that includes waste reduction targets, disposal methods, monitoring schedules, and assigned responsibilities for effective waste management throughout the subproject. • Use containment systems for waste that poses spill risks, and keep spill kits accessible. Train staff on immediate spill response actions to prevent soil and water contamination. • Conduct maintenance tasks, such as oil changes and battery replacements, off-site;	
13.	Waste Management - Electronic Waste Disposal	Communities Construction workforce Soil and water resources	• Contract with recycling facilities and/or manufacturers to ensure proper disposal or recycling of obsolete equipment; • Agreements will be set with e-waste recycling facilities to ensure responsible disposal of electronic waste from solar panels, inverters, batteries, etc.	Bozüyük Municipality Supervision Consultant Contractor
14.	Wastewater Management	Flora and fauna Soil, water resources	• Construct septic tanks for collecting wastewater from site staff; • Regularly dispose/vacuum wastewater in the septic tank to prevent overflow, reduce the risk of contamination, and ensure the proper functioning of the system.	Bozüyük Municipality Supervision Consultant Contractor
15.	Soil and Groundwater Contamination	Communities Construction workforce Flora and fauna Soil and water resources	• Contain and clean up any oil, chemical, lubricant, or fuel spill immediately to prevent environmental contamination. • Implement spill prevention and response measures. Maintain spill containment and clean-up kits on-site. Ensure all spills are contained, cleaned, and disposed of by licensed waste management companies. • Conduct routine servicing of construction vehicles and equipment at designated off-site locations to minimize the risk of leaks or spills. • Perform refuelling in designated areas following strict protocols to prevent accidental spills. • Collect and store waste oil securely for recycling or dispose of it through licensed waste vendors to ensure safe handling. • Provide adequate sanitary facilities, including toilets and showers, for the construction workforce. Ensure prompt repairs and maintenance in the event of any leaks or spills to maintain hygiene and safety standards.	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
16.	Dust and Gaseous Emissions	Communities Construction workforce Flora and fauna Ambient air quality	• Apply water spraying to suppress dust when dusting occurs on roads and construction area. Use water tankers to supply water for this purpose. • Inform communities/residential areasnearbyabout the schedule and nature of construction activities as part of the Stakeholder Engagement Plan (SEP). • Carry out loading and unloading of trucks carefully to prevent materials from dispersing or scattering. • Cover transport trucks with tarpaulins on public roads when arriving at or leaving the site to minimize dust. Clean truck tires before leaving the site to prevent mud and debris from spreading onto public roads. • Enforce a speed limit for trucks to reduce dust and improve site safety. • Use modern equipment and vehicles that meet relevant emission standards. Regularly inspect and maintain exhaust systems to ensure emission levels remain within safe limits. • Implement good site practices by using low-emission construction equipment and vehicles. Utilize cleaner fuels and technologies to reduce dust and other airborne pollutants. • Implement a grievance mechanism to address community concerns. Halt work in case of grievances until corrective measures are in place.	Bozüyük Municipality Supervision Consultant Contractor
17.	Environmental Noise	Communities Construction workforce	• Prohibit the operation of construction machinery at night to minimize noise disturbances. • Inform communities/residential areas nearby about the timing and nature of construction activities as part of the Stakeholder Engagement Plan (SEP). • Ensure that machinery and equipment used during land preparation and construction are distributed evenly throughout the site rather than concentrated in one location. • Choose construction machinery and equipment with low noise emissions to minimize noise impact on the surrounding area. • Use noise barriers or enclosures for loud equipment. • Conduct regular and periodic maintenance of construction machinery and equipment, including daily checks before each shift, to ensure optimal performance and reduce noise levels. • Ensure all vehicles used for transportation comply with the speed limits to minimize noise and enhance safety. • Establish a grievance mechanism to receive and address complaints related to noise and other nuisances from the community. • Halt construction activities in response to grievances until appropriate preventive measures are implemented to address the issues raised. • In case of any environmental noise complaints, measurements will be conducted by accredited laboratory to determine the environmental noise level caused by construction work and if it is over the limits, additional measures	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			such as barriers, arrangement of working hours, etc. will be taken.	
18.	Hazardous Substances Management	Construction workforce Communities Flora and fauna Soil and water resources	• Maintain a comprehensive record of the types, quantities, and properties of hazardous materials to be stored on-site. • Establish a designated storage area specifically equipped for the safe storage of hazardous and toxic materials. • Ensure all storage containers are clearly labelled with appropriate hazard warnings, safety information, and emergency contact details to facilitate proper handling and identification. All chemicals will be managed in accordance with their Material Safety Data Sheets (MSDS). • Utilize suitable containers, tanks, and bunding systems to contain hazardous materials and prevent spills, leaks, or releases. Implement secondary containment measures, such as berms, dikes, or containment basins, to capture any accidental releases. • Ensure adequate ventilation and venting systems are in place within storage areas to prevent the accumulation of hazardous vapours or gases. • Identify and safely remove hazardous materials, including lead-containing components from solar panels and electronic waste from inverters, following proper disposal protocols. • Implement appropriate containment and handling procedures to minimize the risk of spills or releases of hazardous substances during storage and handling. • Arrange for the proper disposal or recycling of hazardous materials through licensed facilities to ensure safe and compliant waste management.	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
Community Health and Safety				
19.	Increased traffic	Communities	• Coordinate traffic management to regulate construction vehicle movement. • Schedule construction activities during off-peak hours to minimize traffic congestion. • Ensure coordination and develop infrastructure upgrades or expansions in advance of the subproject, including improvements to roads, utilities, and telecommunications if necessary. • Use flagmen and signage to direct traffic safely around construction area. • Provide regular updates to the community about construction schedules and traffic impacts. • Ensure all construction vehicles comply with speed limits specified in the regulations and are maintained to minimize emissions and noise. • Limit vehicle speed on unpaved roads to 30 km/h. • Conduct safety training for construction workers on road safety protocols and provide road safety training for all drivers. • Use safe traffic control measures, including road warning signs, speed bumps, and flag persons as necessary. • Monitor traffic conditions and adjust operations as necessary to ensure safety. • Repair any damage to the roads promptly. • Establish a grievance mechanism for community members to report traffic concerns. • Prepare an emergency response plan and protocols to address potential infrastructure failures, accidents, or natural disasters during construction. • Place warning signs, speed bumps and signaling systems on roads passing in front of the school. • Restrict construction site vehicles from passing through the area during school entrance and exit hours or determine alternative routes. • Before construction work that may cause temporary disturbance, the public and nearbyinstitutions and organizations, hospitals and schools will be informed. • Assign direction officers to ensure safe passage of service vehicles and pedestrians • Vehicles carrying project materials would not park outside the subproject area.	Bozüyük Municipality Supervision Consultant Contractor
20.	Risks related with Gender Based Violence (GBV) Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	Communities	• Deliver ethical rules and public communication training to all employees to prevent gender-based violence (GBV), harassment, and abuse in the workplace. • Require all workers to sign and adhere to a code of conduct that promotes respectful behaviour. • Conduct regular awareness-raising sessions on-site focused on GBV prevention and other relevant social issues.	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			• Establish a grievance mechanism to receive and address complaints related to GBV and workplace misconduct.	
21.	Local Economy, Livelihood Sources and Employment	Communities	• Prioritize local hiring for unskilled, semi-skilled, and skilled positions within the scope of the subproject. • Regularly engage with local communities and maintain a grievance mechanism to address community concerns and feedback.	Bozüyük Municipality Supervision Consultant Contractor
22.	Impacts on Vulnerable and Disadvantaged Individuals and Groups	Communities	• Develop a recruitment policy that includes non-discriminatory hiring practices, tailored training programs for vulnerable groups, and support services such as transportation and childcare to facilitate workforce participation.	Bozüyük Municipality Supervision Consultant Contractor
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement				
23.	Impacts on Local Communities using the Site Environs	Communities	• Ensure availability of grievance mechanism for stakeholders affected by land use. • It will be ensured that construction activities do not restrict/obstruct the social and economic life of the local community. • Private and public lands outside the subproject work area will not be entered and all measures will be taken to prevent this.	Bozüyük Municipality Supervision Consultant Contractor
Biodiversity Conservation and Sustainable Management of Living Natural Resources				
24.	Disturbance on Biodiversity	Flora and fauna	• Identify presence and distribution of flora and fauna on the subproject site, if any,with a focus on impact on habitats such as nesting or burrowing sites, to avoid disturbance or destruction during construction activities. • Implement a gradual construction approach to allow fauna species time to escape or provide for their relocation to suitable habitats. • Schedule construction activities during periods of low wildlife activity, avoiding nesting seasons for birds and hibernation periods for mammals. • Minimize vegetation removal by conducting thorough surveys to avoid unnecessary clearing. • Restore natural vegetation upon completion of construction activities to enable species to re-inhabit surrounding areas. • Install exclusion fencing to prevent animals from entering construction zones, using wildlife-friendly designs that allow small animals to pass through safely. • Install barriers around known burrows or nesting sites to protect them from disruption during construction, using temporary or permanent solutions as necessary. • Clearly separate subproject construction sites and access roads from other areas with appropriate signage and fencing, limiting personnel and vehicle access to these areas. • Reduce habitat degradation by keeping vehicles on designated access roads	Bozüyük Municipality Supervision Consultant Contractor

No.	Risks and Impacts	Receptor(s)	Proposed Mitigation Measure	Responsible Parties
			and minimizing pedestrian traffic in intact areas.	
Cultural Heritage				
25.	Impacts on Cultural Heritage	Cultural heritage	• Develop and implementthe Chance Finds Procedure (see Appendix-9. Chance Find Procedure) to ensure timely identification and appropriate management of any chance findings during subproject implementation. • Include the Chance Finds Procedure as part of toolbox training sessions during construction to raise awareness among workers. • Stop construction work immediately if any chance finds are encountered. • Inform the relevant Preservation Board or Museum Directorate and ILBANK immediately, and ensure the security of the area by the contractor. Construction work will not resume until official notification is received.	Bozüyük Municipality Supervision Consultant Contractor
Stakeholder Engagement and Information Disclosure				
26.	Insufficient Stakeholder Engagement Activities and Public Consultation.	Communities Construction workforce	• Create channels for interaction and communication with local communities, ensuring that engagement activities are scheduled at convenient times. • Conduct regular consultations with relevant authorities and local communities to discuss project management and gather feedback. • All channels of reaching out to the local people will be used to increase participation. Bulk SMS, WhatsApp messages, social media channels, posters and brochures will be prepared and delivered to the local people, especially the brochures will be hung in mukhtar offices, mosques, tea houses and coffee houses. In addition, a section will be created for the subproject on the BozüyükMunicipality website. All information about the subproject will be shared here. The support they need will be provided to vulnerable and disadvantaged groups who may have difficulty in participation.	Bozüyük Municipality Supervision Consultant Contractor

3.b) Operation ESMP Matrix

Ref.	Impact Description	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure
Labor and Working Conditions				
1.	Improper Working Conditions	Employees	• Conduct daily/weekly toolbox talks covering the OHS Plan and labor conditions. • Apply the SLMP to ensure compliance in recruiting and managing all employees. • Enforce strict prohibition of child labor, forced labor, and unregistered labor as per SLMP requirements. • Workers will be provided with documented information that is clear and understandable regarding their rights under national labor law, including collective agreements, and their rights related to hours of work, wages, overtime, compensation, and benefits at the start of the working relationship and whenever any material changes occur. • Recruitment procedures will comply with national labor legislation and ESS2, and an accessible grievance mechanism for workers will be implemented and maintained. • For non-routine work, a risk assessment must be made before the job. A work permit procedure must be implemented.	Bozüyük Municipality
2.	General OHS risks	Employees	• Develop a comprehensive **risk assessment document** for subproject, addressing specific risks and defining mitigation measures. • Ensure that all employees, including subcontractors, receive necessary OHS training covering identified risks. • Prepare subproject management plans, including Safe Work Procedures and an **Emergency Response Plan**. • Emergency scenarios should be determined for all risks and every employee should receive training on these scenarios. • Enforce safety procedures and provide appropriate PPE to all employees. • Incorporate job-specific safety procedures and requirements in OHS training programs.	Bozüyük Municipality
3.	Physical Hazards: Lifting Operations OHS Risks	Employees	• Ensure that lifting area will be enclosed with fence to prevent access to the lifting area during lifting work. • Ensure that warning signs will be installed for lifting activities • Ensure that safety procedures will be used for lifting operations. • Ensure that lifting work will be carried out by well trained, qualified, and certified lifting team and with proper communication means and flag man. • Ensure that workers will be provided with all necessary PPE and safety	Bozüyük Municipality

Ref.	Impact Description	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure
			materials. • Ensure all equipment used for lifting operations including slings, chains and hooks are checked technically and records are kept according to local safety legislation.	
4.	Physical Hazards: Electrical Hazards	Employees	• No one without a valid certification on vocational training on electricity will be allowed to work on electrical installations. • Ensure that all energized electrical devices and lines are marked with warning signs; • Ensure that the devices are locked (de-charging and leaving open with a controlled locking device) and labeled (warning sign placed on the lock) during service or maintenance; • A “Lockout Tagout” (LOTO) Procedure specific to the subproject should be prepared, personnel should be trained and its implementation should be supervised. • Ensure that all electrical cords, cables, and hand power tools are checked for frayed or exposed cords. Also, ensure that the manufacturer's recommendations for the maximum permitted operating voltage of portable hand tools are followed; • Damaged electrical cables should be replaced with new ones, and no taping or splicing should be done. • Insulating mats should be placed under electrical panels, including portable panels. • Ensure that portable electrical appliances are “portable electrical appliance tested (PAT)” • Ensure that all electrical equipment used in environments that are or may be wet is double insulated/grounded; use equipment with ground fault interrupter (GFI) protected circuits; • Ensure that power cords and extension cords are protected against damage from traffic by shielding or suspending above traffic areas; • Ensure that high-voltage equipment ('electrical hazard') and service rooms where access is controlled or prohibited are properly labeled; • Ensure that "No Approach" zones are established around or under high voltage lines; • Ensure that construction vehicles or other vehicles with rubber tires that come into direct contact with or arc across high-voltage cables are taken out of service for 48 hours; • Ensure that all buried electrical cables are thoroughly identified and marked prior to any excavation work. • Ensure that special training programs are organized for employees on electrical hazards and safety precautions.	Bozüyük Municipality

Ref.	Impact Description	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure
			• Ensure that rapid response teams and emergency plans are established for electrical accidents. • Ensure that regular electrical safety inspections are conducted in the subproject area. • Ensure that periodic inspections are conducted to ensure that employees use appropriate personal protective equipment (PPE).	
5.	Fire Safety Prevention Measures and Emergency Response	Employees Flora and fauna Soil, water resources	• Ensure all employees are trained for their responsibility to report dangers and fire fighting measures • Ensure that all flammable and hazardous materials are stored in designated, secure areas away from ignition sources. • Ensure firefighting systems and equipment are available. • Ensure fire and emergency drills are conducted regularly. • Designate trained fire wardens for each area to lead evacuations and coordinate with emergency responders. • Keep an up-to-date list of emergency contacts, including local fire departments and hospitals, for quick access in case of fire. • Ensure the number of trained first-aiders is in accordance withworkplace hazards class as specified in the First Aid Regulation. •	Bozüyük Municipality
6.	Physical Hazards: Ergonomics, Repetitive Motion, Manual Handling Lifting	Employees	• Establish clear weight limits for manual handling tasks and label heavy loads accordingly; • Ensure that mechanical assists are used to eliminate or reduce the effort required to lift materials, hold tools and work objects, and that more than one person is lifting if weights exceed thresholds; • Ensure that tools are selected and designed that reduce force requirements and holding times and improve postures; • Ensure that user-adjustable workstations are provided; • Ensure that rest and stretch breaks are incorporated into work processes and job rotation is in place; • Ensure quality control and maintenance programs are in place that reduce unnecessary forces and effort; • Ensure that additional special circumstances, such as left-handed people, are considered. • .Ergonomics training should be given to personnel at regular intervals.	Bozüyük Municipality
7.	Physical Hazards: Chemical Hazards	Employees Flora and fauna Soil, water resources	• Ensure that the hazardous substance is replaced with a less hazardous substitute; • Ensure that engineering and administrative control measures are in place to prevent or minimize the release of hazardous substances into the working environment, keeping the exposure level below internationally	Bozüyük Municipality

Ref.	Impact Description	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure
			established or recognized limits; • Ensure that the number of workers exposed or likely to be exposed is minimal; • Ensure that chemical hazards are communicated to workers through labeling and marking according to nationally and internationally recognized requirements and standards, including International Chemical Safety Cards (ICSC), Safety Data Sheets (SDS/SDSs) or equivalent. Any means of written communication should be in an easily understood language and be readily available to exposed workers and first-aid personnel; • Ensure that employees are trained in the use of available information (such as SDSs/SDSs), safe working practices and proper use of PPE. • Ensure workers have access to suitable personal protective equipment (PPE), such as gloves, respirators, goggles, and protective clothing, based on the specific chemical hazards. • Store hazardous substances in designated areas with appropriate ventilation, labeling, and secure containment to prevent accidental exposure or spills. • Provide chemical overflow pallets and store chemical containers by placing them on them. • Develop and implement a spill response as a part of Emergency Response Plan includes containment,measures, chemical spill/leak response drills, cleanup procedure, hazardous substance disposal and emergency contact information. • Dispose of chemical waste according to regulations to prevent environmental contamination and worker exposure. • Regularly inspect and maintain chemical handling equipment, storage areas, and PPE to prevent leaks or accidental releases.	
8.	Gender-Based Violence (GBV); Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) on Employees; Gender Inequality	Employees	• Provide GBV and SEA/SH awareness sessions for the management teams of the construction contractor and consultants to promote understanding and accountability. • Conduct regular awareness meetings with workers to educate them on GBV and SEA/SH issues and the importance of respectful workplace conduct. • Ensure all workers receive training on recognizing, preventing, and responding to GBV and SEA/SH incidents. • Require all workers to review, sign, and adhere to a Code of Conduct that explicitly addresses unacceptable behaviors related to GBV and SEA/SH. • Implement a confidential and accessible grievance mechanism	Bozüyük Municipality

Ref.	Impact Description	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure
			specifically designed to capture and address GBV and SEA/SH-related complaints in a timely manner.	
Resource Efficiency and Pollution Prevention and Management				
9.	Waste Management	Employees Communities Flora and fauna Soil, water resources	• Separate waste at the source into waste categories determined in Waste Management Regulation, establish temporary waste storage area • Place labeled bins for each type of waste at strategic locations on-site to ensure correct disposal by workers. • Implement practices to reduce waste generation by optimizing material use and reusing materials where possible. • Contract with local recycling facilities to ensure that recyclable materials (e.g., metals, paper, plastic) are properly processed. • Store waste in designated, secured areas to prevent littering, leaching, and environmental contamination. • Use leak-proof containers for hazardous or liquid waste and ensure they are adequately labeled. • Contract with licensed waste disposal companies to handle non-recyclable and hazardous wastes in accordance with Waste Management Regulation. • Track and document the disposal process to ensure compliance and accountability. • Conduct regular awareness sessions and training for workers on waste reduction techniques, proper disposal practices, and the importance of waste management. • Regularly monitor waste management practices, conduct site inspections, and assess waste volumes to identify areas for improvement. • Establish a reporting system to document waste types, quantities, and disposal methods. • Develop a comprehensive waste management plan that includes waste reduction targets, disposal methods, monitoring schedules, and assigned responsibilities for effective waste management throughout the subproject. • Use containment systems for waste that poses spill risks, and keep spill kits accessible. Train staff on immediate spill response actions to prevent soil and water contamination. • Conduct maintenance tasks, such as oil changes and battery replacements, off-site;	Bozüyük Municipality
10.	Electronic Waste Disposal	Employees Communities Flora and fauna	• Contract with recycling facilities and/or manufacturers to ensure proper disposal or recycling of obsolete equipment;	Bozüyük Municipality

Ref.	Impact Description	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure
		Soil, water resources	• Agreements will be set with e-waste recycling facilities to ensure responsible disposal of electronic waste from solar panels, inverters, batteries, etc.	
11.	Water Use	Flora and fauna Soil, water resources	• Use water efficiently when cleaning solar panels to minimize water consumption and wastewater production. • Implement wiper cleaning using rubber blade water sprayers that require minimal water, promoting water conservation practices.	Bozüyük Municipality
12.	Wastewater Management	Flora and fauna Soil, water resources	• Utilize septic tanks constructed during the construction stage to collect wastewater from operational staff. • Ensure septic tanks are regularly vacuumed to prevent overflow, reduce contamination risk, and maintain system functionality.	Bozüyük Municipality
13.	Soil and Groundwater Contamination	Employees Communities Flora and fauna Soil and water resources	• Contain and clean up any oil, chemical, lubricant, or fuel spill immediately to prevent environmental contamination. • Implement spill prevention and response measures. Maintain spill containment and clean-up kits on-site. Ensure all spills are contained, cleaned, and disposed of by licensed waste management companies. • Conduct routine servicing of construction vehicles and equipment at designated off-site locations to minimize the risk of leaks or spills. • Collect and store waste oil securely for recycling or dispose of it through licensed waste vendors to ensure safe handling. • Provide adequate sanitary facilities, including toilets and showers, for the construction workforce. Ensure prompt repairs and maintenance in the event of any leaks or spills to maintain hygiene and safety standards.	Bozüyük Municipality
14.	Hazardous Substances Management	Employees Communities Flora and fauna Soil and water resources	• Maintain a comprehensive record of the types, quantities, and properties of hazardous materials to be stored on-site. • Establish a designated storage area specifically equipped for the safe storage of hazardous and toxic materials. • Ensure all storage containers are clearly labelled with appropriate hazard warnings, safety information, and emergency contact details to facilitate proper handling and identification. All chemicals will be managed in accordance with their Material Safety Data Sheets (MSDS). • Utilize suitable containers, tanks, and bunding systems to contain hazardous materials and prevent spills, leaks, or releases. Implement secondary containment measures, such as berms, dikes, or containment basins, to capture any accidental releases. • Ensure adequate ventilation and venting systems are in place within storage areas to prevent the accumulation of hazardous vapours or gases.	Bozüyük Municipality

Ref.	Impact Description	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure
			• Identify and safely remove hazardous materials, including lead-containing components from solar panels and electronic waste from inverters, following proper disposal protocols. • Implement appropriate containment and handling procedures to minimize the risk of spills or releases of hazardous substances during storage and handling. • Arrange for the proper disposal or recycling of hazardous materials through licensed facilities to ensure safe and compliant waste management.	
Community Health and Safety				
15.	Risk of accidents and injury (e.g. Electric Shock) involving community members (inc. Children)	Communities	• Subproject area must be fenced and access of the community members (especially children) must be physically restricted by any means. • Security surveillance of the area must be maintained 7/24	Bozüyük Municipality
16.	Glare from Solar Panels which can be a Safety Hazard for Drivers, Pedestrians, and Nearby Residents, Particularly if it Impairs Visibility or Causes Discomfort	Communities	• Ensure correct orientation of solar panels to minimize glare and reduce potential impact on road safety near the solar plant. • Apply anti-glare coatings to panels where required to further mitigate glare and enhance road safety in the vicinity.	Bozüyük Municipality
17.	Risks Related With Gender Based Violence (GBV) Sexual Exploitation Abuse / Sexual Harassment (SEA/SH)	Communities	• Deliver ethical rules and public communication training to all employees to prevent gender-based violence (GBV), harassment, and abuse in the workplace. • Require all workers to sign and adhere to a code of conduct that promotes respectful behaviour. • Conduct regular awareness-raising sessions on-site focused on GBV prevention and other relevant social issues. • Establish a grievance mechanism to receive and address complaints related to GBV and workplace misconduct.	Bozüyük Municipality
18.	Impacts on Local Economy, Livelihood Sources and Employment	Communities	• Regularly engage with local communities and maintain a grievance mechanism to address community concerns and feedback.	Bozüyük Municipality
19.	Impacts on Vulnerable and Disadvantaged Individuals	Communities	• Implement a recruitment policy that promotes non-discriminatory hiring, provides tailored training for vulnerable groups, and offers support	Bozüyük Municipality

Ref.	Impact Description	Sensitive Receptor(s)	Management/ Mitigation Measure	Responsibility for Implementation of Mitigation Measure
	and Groups		services such as transportation or childcare. • Develop and execute Corporate Social Responsibility activities to benefit local communities, focusing on identified needs such as road improvements and utility enhancements.	
20.	Security Personnel	Communities	• The grievance mechanism will allow communities and workers to express concerns regarding security issues and behaviour of security personnel.	Bozüyük Municipality
Biodiversity Conservation and Sustainable Management of Living Natural Resources				
21.	Disturbance on Biodiversity	Flora and fauna	• Ensure proper maintenance of exclusion fencing around the site, utilizing wildlife-friendly designs that allow small animals, such as hedgehogs, to pass safely. • Implement appropriate signage and fencing to separate subproject access roads from other areas, limiting personnel and vehicle access to designated zones. • Domestic and industrial waste management should be carried out in accordance with the legislation and no waste should be left in the open. • Devices or applications that produce odors, lights, or sounds that wild vertebrates perceive as threatening should be minimized. Pets should not be kept and food that will attract wild animals to the SPP site should not be left in the area.	Bozüyük Municipality
Stakeholder Engagement and Information Disclosure				
22.	Insufficient Stakeholder Engagement Activities and Public Consultation.	Communities Construction workforce	• Create channels for interaction and communication with local communities, ensuring that engagement activities are scheduled at convenient times. • Conduct regular consultations with relevant authorities and local communities to discuss project management and gather feedback.	Bozüyük Municipality

Appendices

Appendix-1. Site Map

Appendix-2. Copies of Existing Permitting Documentation

EIA Document

T.C.
BİLECİK VALİLİĞİ
Çevre, Şehircilik ve İklim Değişikliği İl Müdürlüğü

Sayı : E-42903529-220.03-10771944
Konu : ÇED Kapsam Dışı Görüşü

BOZÜYÜK BELEDİYE BAŞKANLIĞINA
(Fen İşleri Müdürlüğü)

İlgi : 18.10.2024 tarih ve 279289 sayılı (21.10.2024 tarih ve 205398 Geçici Referans No.lu) başvurunuz.

İlgi başvurunuzda; İlimiz, Bozüyük İlçesi, Kızıltepe Mevkii, Yeni Mahalle, 345 Ada, 38 no.lu Parsede, 11.205,4 m^2 alan üzerinde, Bozüyük Belediye Başkanlığı tarafından yapılması planlanan "Güneş Enerji Santrali Projesi" ile ilgili olarak ÇED Yönetmeliği kapsamında değerlendirme yapılması istenmektedir.

Bu bağlamda; İlimiz, Bozüyük İlçesi, Kızıltepe Mevkii, Yeni Mahalle, 345 Ada, 38 no.lu Parsede, 11.205,4 m^2 alan üzerinde, **Bozüyük Belediyesi Başkanlığı** tarafından yapılması planlanan 0,95 MW (950kWe/982,8 kWm) kapasiteli "Güneş Enerji Santrali Projesi", 29.07.2022 tarih ve 31907 sayılı Resmi Gazetede yayınlanarak yürürlüğe giren ÇED Yönetmeliği listelerindeki eşik değerden az olduğu için **ÇED Kapsam Dışı olarak değerlendirilmiştir.**

Ancak, planlanan yatırım ile ilgili olarak, 2872 sayılı Çevre Kanunu ile 5491 sayılı Çevre Kanununda Değişiklik Yapılmasına Dair Kanuna istinaden çıkarılan Yönetmeliklerin ilgili hükümlerine uyulması ve diğer mer'i mevzuat çerçevesinde öngörülen gerekli izinlerin alınması, ekolojik dengenin bozulmamasına, çevrenin korunmasına ve geliştirilmesine yönelik tedbirlere uyulması gerekmektedir.

Bilgi ve gereğini arz ederim.

Engin ÖZTÜRK
İl Müdürü

Municipal Council Decision

BOZÜYÜK BELEDİYESİ MECLİS KARARI

TARİH: 05.07.2024
SAYI : 42

Toplantıya katılanlar: Başkan Mehmet Talat BAKKALCIOĞLU, Üyeler Hıdır AKYÜREK, Hakan CENGİZ, İsmail ÖZCAN, Sezai İNCİ, Mustafa ARDA, İsmail Serdar ÇALDEMİR, Cenkhan ACDER, Seda SAİTOĞLU, Sevgi ERDEM, Zülfüye ÖNEY, Fikret Ayhan HİTİT, İlter KALKAN, Cenk Osman ŞENOL, Seçkin ASLAN, Ayşe Nur TURAN, Ali POYRAZ, Ümit KÖK, Volkan ATALAY, İsmail KAÇAR, Sefa ERİM, Safa ÇOLAK, Adnan ÖZEL.

Toplantıya katılmayanlar: Mustafa KÜPLÜ, Gökhan DEMİR, Merve ÜNSAL.

1/1000 ölçekli Uygulama İmar Planında Belediye Hizmet Alanında ve Yenilenebilir Enerji Üretim Kaynaklarına Dayalı Üretim Tesis Alanında, 1/5000 ölçekli Nazım İmar Planında Belediye Hizmet Alanında ve Enerji Üretim Alanında kalan ilçemiz Yeni Mahalle 345 ada 38 parselde plan değişikliği yapılması talebinin görüşülmesi.

KARAR: Başkan tarafından açıklandığı üzere; İmar ve Şehircilik Müdürlüğünün 30.05.2024 tarihli ve 274622 sayılı yazılarında; 1/1000 ölçekli Uygulama İmar Planında Belediye Hizmet Alanında ve Yenilenebilir Enerji Üretim Kaynaklarına Dayalı Üretim Tesis Alanında, 1/5000 ölçekli Nazım İmar Planında Belediye Hizmet Alanında ve Enerji Üretim Alanında kalan ilçemiz Yeni Mahalle 345 ada 38 parselde plan değişikliği yapılmasını talep etmektedir.

İmar Komisyonu: İlçemiz Yeni Mahalle 345 ada 38 parselde, 1/5000 ölçekli Nazım İmar Planında Enerji Üretim Alanı ve 1/1000 ölçekli Uygulama İmar Planında 3m yapı yaklaşma mesafesine, Emsal:0.40, Yençok:7.50m yapılaşma koşullarına sahip Yenilenebilir Enerji Kaynaklarına Dayalı Üretim Tesisi Alanı olarak plan değişikliği yapılması uygun görüldüğü yönünde görüş bildirmiştir.

Mecliste yapılan görüşmeler neticesinde; : İmar Komisyonu kararına göre yapılan oylama da; Komisyondan geldiği şekli ile kabulüne oybirliği ile karar verildi.

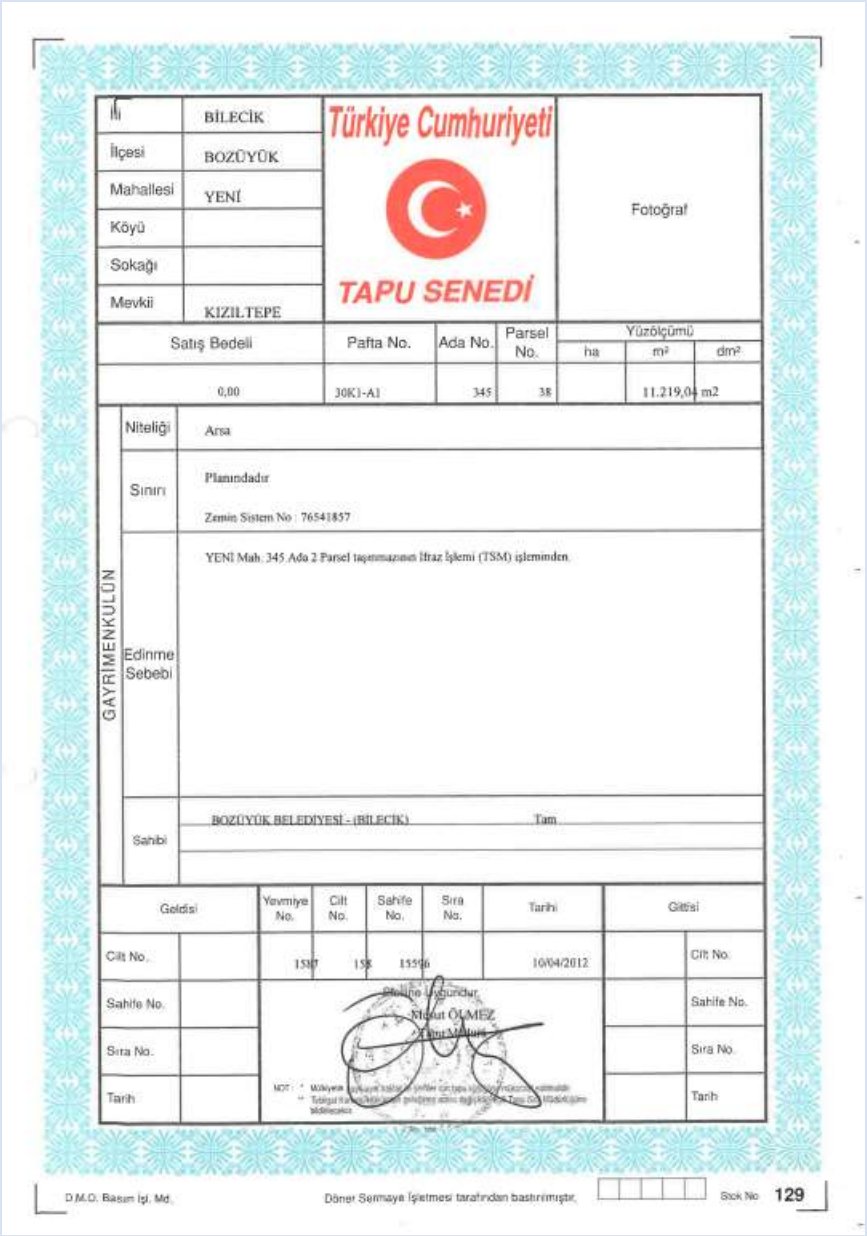
Mehmet Talat BAKKALCIOĞLU
Meclis Başkanı

Cenkhan ACDER
Katip

Seda SAİTOĞLU
Katip

ASLI GİBİDİR
H. Melis ÖZCATAL
Şehir Plancısı

Appendix-3. Copies of Title Deed(s)



Türkiye Cumhuriyeti

TAPU SENEDİ

İli	BİLECİK
İlçesi	BOZÜYÜK
Mahallesi	YENİ
Köyü	
Sokağı	
Mevkii	KIZILTEPE

Fotoğraf

Satış Bedeli	Pafta No.	Ada No.	Parsel No.	Yüzölçümü ha	Yüzölçümü m²	Yüzölçümü dm²
0,00	30K1-A1	345	38		11.219,04 m2	

GAYRİMENKULÜN

Niteliği	Arsa
Sınırı	Planındadır Zemin Sistem No : 76541857
Edinme Sebebi	YENİ Mah. 345 Ada 2 Parsel taşınmazının İfraz İşlemi (TSM) işleminden.
Sahibi	BOZÜYÜK BELEDİYESİ - (BİLECİK) Tam

Geldisi		Yevmiye No.	Cilt No.	Sahife No.	Sıra No.	Tarihi	Gittisi	
Cilt No.		1507	158	15506		16/04/2012		Cilt No.
Sahife No.								Sahife No.
Sıra No.								Sıra No.
Tarih								Tarih

Müdür ÖLMEZ

D.M.O. Basım İşl. Md. Döner Sermaye İşletmesi tarafından bastırılmıştır. Sıra No 129

webtapu

Kaydı Oluşturan: RASİME BABAYİĞİT (Bozüyük Belediye Başkanlığı)

Tapu Kaydı (Aktif Malikler için Detaylı - ŞBİ var)

TAPU KAYIT BİLGİSİ

Zemin Tipi:	AnaTasinmaz
Taşınmaz Kimlik No:	63651290
İl/İlçe:	BİLECİK/BOZÜYÜK
Kurum Adı:	Bozüyük
Mahalle/Köy Adı:	YENİ Mah.
Mevkii:	KIZILTEPE
Cilt/Sayfa No:	50/4919
Kayıt Durum:	Aktif

Ada/Parsel:	345/17
AT Yüzölçüm(m2):	540.00
Bağımsız Bölüm Nitelik:	
Bağımsız Bölüm Brüt YüzÖlçümü:	
Bağımsız Bölüm Net YüzÖlçümü:	
Blok/Kat/Giriş/BBNo:	
Arsa Pay/Payda:	
Ana Taşınmaz Nitelik:	TROFO MERKEZİ

MÜLKİYET BİLGİLERİ

(Hisse) Sistem No	Malik	El Birliği No	Hisse Pay/ Payda	Metrekare	Toplam Metrekare	Edinme Sebebi-Tarih-Yevmiye	Terkin Sebebi-Tarih-Yevmiye
177983572	(SN:2858663) BOZÜYÜK BELEDİYESİ - (BİLECİK) VKN:1860022319	-	1/1	540.00	540.00	Tesis Kadastrosu 01-12-1977 0	-

Bu belgeyi akıllı telefonunuzdan karekod tarama programları ile aşağıdaki barkodu taratarak;

webtapu

Kaydı Oluşturan: RASİME BABAYİĞİT (Bozüyük Belediye Başkanlığı)

Tapu Kaydı (Aktif Malikler için Detaylı - ŞBİ var)

TAPU KAYIT BİLGİSİ

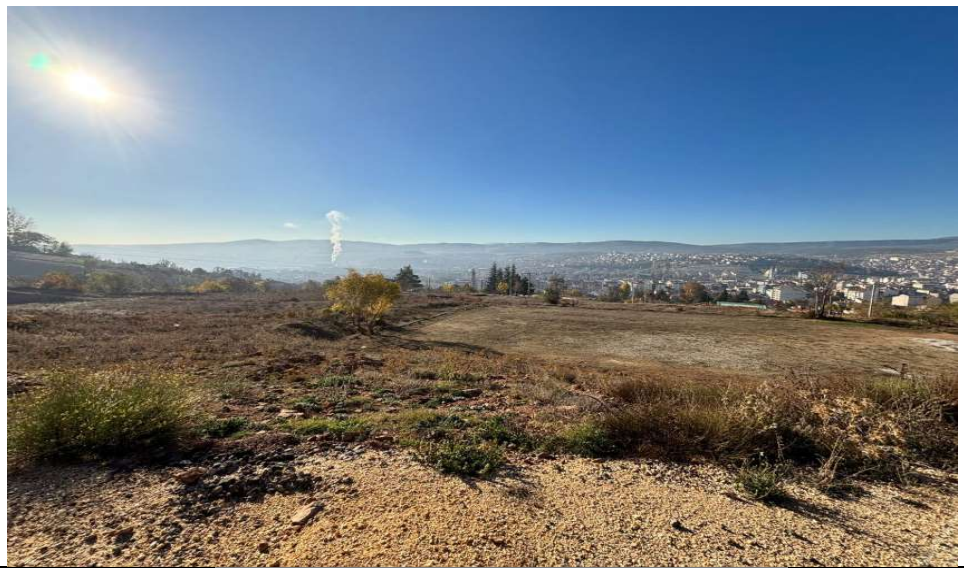
Zemin Tipi:	AnaTasinmaz
Taşınmaz Kimlik No:	76541859
İl/İlçe:	BİLECİK/BOZÜYÜK
Kurum Adı:	Bozüyük
Mahalle/Köy Adı:	YENİ Mah.
Mevkii:	KIZILTEPE
Cilt/Sayfa No:	158/15598
Kayıt Durum:	Aktif

Ada/Parsel:	345/40
AT Yüzölçüm(m2):	2187.26
Bağımsız Bölüm Nitelik:	
Bağımsız Bölüm Brüt YüzÖlçümü:	
Bağımsız Bölüm Net YüzÖlçümü:	
Blok/Kat/Giriş/BBNo:	
Arsa Pay/Payda:	
Ana Taşınmaz Nitelik:	Arsa

MÜLKİYET BİLGİLERİ

(Hisse) Sistem No	Malik	El Birliği No	Hisse Pay/ Payda	Metrekare	Toplam Metrekare	Edinme Sebebi-Tarih-Yevmiye	Terkin Sebebi-Tarih-Yevmiye
207918116	(SN:2858663) BOZÜYÜK BELEDİYESİ - (BİLECİK) VKN:1860022319	-	1/1	2187.26	2187.26	İfraz İşlemi (TSM) 10-04-2012 1587	-

Appendix-4. Photographic Log

Photo No: 01	
Date: 21.01.2024	
Location: Lot 2 of block 0	
Details/Notes:	
Photo No: 02	
Date: 21.01.2024	
Location: Lot 2 of block 0	
Details/Notes:	
Photo No: 03	
Date: 21.01.2024	
Location: Lot 2 of block 0	
Details/Notes:	
Photo No: 04	
Date: 21.01.2024	

Location: Lot 2 of block 0	
Details/Notes:	

Appendix-5. Construction Notice Template

“Çevreyeverdiğimizrahatsızlıktandolayıözürdileriz!”

BOZÜYÜK BELEDİYESİ
982.8 kWp/950 kWeGES ALTPROJESİ YAPIM İŞİ
İşinSüresi:

Şikâyet, istek, soruveyorumlarınıziçin:

YÜKLENİCİ ADI	**:**	**Adres:** **Telefon:** **E-posta:** **İletişimFormu:**
İŞVEREN	**:**	**Adres: Address:** ÇarşıMahalleÜrgenpaşaCaddesi No: 1 Bozüyük/BİLECİK **Telefon:** +90 228 314 67 00 **E-posta:** ınfo@bozuyuk.bel.tr **İletişimFormu:**
İllerBankası A.Ş. (İLBANK)		**Adres:** İllerBankası A.Ş. EmniyetMahallesi, HipodromCaddesi No:9/21, Yenimahalle/ANKARA **Telefon:** 0 (312) 508 79 79 **E-posta:** bilgiuidb@ilbank.gov.tr **İletişimFormu:** https://www.ilbank.gov.tr/form/bilgiedinmeuluslararasi

Appendix-6. E&S Incident Notification Form

1) Incident Details		
Date of Incident:[Please insert]	**Time of Incident:**[Please insert]	
Location of the Incident:	[Please insert]	
Sub-borrower Name:	[Please insert]	
Date Reported to ILBANK: [Please insert]	**Reported to ILBANK by**: [Please insert]	**Notification Method**: [Please insert]
Date Reported to WB: [*Please indicate*]	**Reported to WB by**: [Please insert]	**Notification Type**: [Please insert]
Contractor Name:	[Please insert]	
Sub-contractor name (please indicate if involved in the incident):	[Please insert]	

2) Type of incident (please check all that apply)	
☐ Fatality ☐ Lost time injury ☐ Child labor ☐ Forced labor	☐Environmental pollution incident ☐Disease outbreaks ☐Acts of violence/protest ☐Other

3) Description/Narrative of Incident

4) Actions taken to contain the incident
<u>For incidents involving a Contractor:</u> **Name of Contractor: _____** **Have the works been suspended? Yes ☐ No ☐**

5) What support has been provided to affected people
[*Please briefly describe*]

6) Please provide the supporting documents for the incident, victims and involved persons
(e.g. copies of the social security registration records, victim and witness statements, notification to authorities, legal investigation reports, training records, photographs, etc.)

Appendix-7. Simplified Labor Management Procedure

SLMP_Template.DOCX

Appendix-8. Roles and Responsibilities

Party	Role	Key Responsibilities
Sub-borrower		
Bozüyük Municipality	Sub-borrower Management	• Hold ultimate responsibility for the E&S performance of the subproject to the satisfaction of the ILBANK, including the performance of subproject contractors throughout the sub-financing agreement life cycle. • Establish Project Implementation Unit (PIU) following the execution of sub-financing agreements to carry out operational and administrative tasks to oversee the implementation of the E&S instruments and monitoring progress; allocate resources for the recruitment of in-house environmental, social and OHS staff under the PIU • Ensure that E&S instruments and procedures required by ILBANK is prepared within the timeframes agreed with ILBANK and allocate adequate financial and human resources – either from the Sub-borrower's own resources or from the Subproject loan and implement. • Cooperate with the ILBANK representatives to discuss and agree on the ESAP and other E&S covenants for incorporation into sub-financing agreements to be executed between the ILBANK and the sub-borrower (with support from RD E&S team as necessary) • Ensure that EHSS requirements of ILBANK are incorporated into relevant contractor tender and agreement documents to be prepared in collaboration with the construction supervision consultant • Hold and use the authority and responsibility to stop any subproject related work activity if it poses an imminent danger to health, safety, or the environment. • Allocate resource to ensure monitoring of subproject E&S performance and reporting to ILBANK at IFI standards in line with the sub-financing agreement conditions • Facilitate monitoring visits and audits by ILBANK and their consultants • Notify the ILBANK RD – E&S Teams of any significant E&S incident or accident within maximum 24 hours of the accident/incident; contractually require the supervision consultants and/or contractors to promptly report such incident and accidents (timeframe to be defined by ILBANK) • Prepare and submit a detailed E&S Incident Investigation Form, supplemented by an RCA to be conducted pursuant to GIIPs, to ILBANK within **15 days** of the accident/incident date for significant accidents or incidents (in line with the template presented in the E&S Supervision, Monitoring and Reporting Procedure). The investigation will be supplemented by a Root Cause Analysis (RCA). • Prepare and submit semiannual E&S monitoring reports to ILBANK.
	E&S Team - Environmental staff - Social staff - OHS staff	• Participate in the training to be organized by ILBANK as part of ILBANK ESMS Training Procedure implementation • Ensure that E&S documentation required by ILBANK is prepared by qualified independent specialists and submitted to ILBANK for appraisal and credit. • Provide ILBANK with relevant adequate information to undertake the E&S due diligence in accordance with the ESMS (e.g. duly completed sub-borrower questionnaire and supporting documentation to be requested by ILBANK in accordance with the E&S Screening and Risk Classification and ESDD procedures) • Support the sub-borrower management as required in the review and evaluation of ESAP and other E&S covenants for incorporation into sub-financing agreements to be executed between the ILBANK and the sub-borrower • Ensure compliance of subprojects operations (including contractor activities on site) with national legislation and E&S requirements of the lending WB as included in the sub-financing agreements, ESAP and subproject-specific E&S documentation. • Undertake monitoring of subproject E&S performance and reporting to ILBANK at WB standards in line with the sub-financing agreement conditions • Ensure implementation of corrective actions in case of E&S non-compliances

Party	Role	Key Responsibilities
		in coordination and agreement with ILBANK DG and RD E&S teams over reasonable timeframes • Coordinate the construction supervision consultants, contractors and/or external E&S consultants for collection of the monitoring data and compilation of or providing input to periodic monitoring reports as necessary and appropriate • Allow ILBANK representatives (including individual consultants) to access subproject facilities and records
Construction Supervision Consultants ("*Müsavir*")	Management and E&S staff	Carry out the following tasks on behalf of the sub-borrowers: • Participate in the training sessions to be organized by sub-borrowers in line with the requirements of ILBANK ESMS Training Procedure • Supervise the construction works of contractors on-site, including implementation of subproject-specific E&S requirements by contractors on a daily basis • Ensure sufficient E&S capacity for implementation of E&S requirements as set out in the sub-financing agreements between the sub-borrower and ILBANK • Support the sub-borrowers for the supervision and review of E&S management documentation prepared by construction contractors and submit them to sub-borrowers upon finalization • Review monthly self-monitoring reports prepared by the construction contractors for early identification of E&S issues and/or non-compliances and submit them to municipalities/municipal utilities upon finalization • Prepare and submit regular monthly reports to Sub-borrower on the environmental, social and OHS issues of the Subproject during the construction phase • Identify E&S non-compliances on site and enforce construction contractors to undertake corrective actions within defined and agreed timeframes • Support the sub-borrowers (as requested) in the preparation of periodic E&S monitoring reports to be submitted to ILBANK in line with the ILBANK E&S Supervision, Monitoring and Reporting Procedure • Notify the sub-borrower of any significant E&S incident or accident that have taken place in subproject related operations within 24 hours.
Construction Contractor	Management and E&S staff	• Ensure sufficient E&S capacity for implementation of E&S requirements as set out in the construction contracts • Participate in the training sessions to be organized by sub-borrowers in line with the requirements of ILBANK ESMS Training Procedure • Prepare subproject-specific E&S management plans and procedures prior to start of construction works as required by the construction contracts • Comply with the requirements of national legislation and implement the E&S requirements as set out in the sub-financing agreements (executed between ILBANK and the sub-borrowers) and construction contracts • Submit periodic (in frequencies to be set by ESAP) E&S self-monitoring reports to the municipalities/municipal utilities through construction supervision consultants ("*müşavir*") – in line with the format provided by ILBANK. • Fill in monthly occupational health and safety (OHS) forms – reviewed by construction supervision consultants. • Implement corrective actions in case of E&S non-compliances under the supervision of sub-borrower's construction supervision consultant • Promptly notify the sub-borrower of any significant E&S incident or accident that have taken place in subproject related operations (timeframe to be defined by ILBANK no later than 24 hours).

Appendix-9. Chance Find Procedure

Introduction

This document describes the Chance Find Procedure for subproject, outlining the procedures that will be followedin case of chance finds occur during the construction activities associated with the subproject.

Scope

This Chance Find Procedure (CFP) will be implemented for BozüyükMunicipality982.8kWp/ 950 kWe Solar (Photovoltaic) Power Plant (SPP)subproject in order to manage any chance finds that may be encountered during the construction activities. The purpose of the CFP document is to:

- outline the applicable legislation and standards relevant to this procedure;
- define roles and responsibilities;
- define subproject commitments, operational procedures, training requirements and guidance relevant to this procedure; and
- define monitoring and reporting procedures.

Although there are no known archaeological sites or remains within the subproject area, it is considered that there may be a potential to encounter archaeological findings during the construction of the subproject. Activities which have high potential to lead to discover or adversely affect the archeological resources are;

- topsoil stripping
- excavation and earthworks

This CFP is prepared in order to provide information to the contractors and employees regarding the actions to be taken in case of an archaeological chance find discovery.

Legislation and Standards

Legislation and standards that apply to the subproject comprise the following:

- Word Bank Environmental and Social Standard (ESS) 8: Cultural Heritage
- applicable Turkish laws and national standards
- other commitments to and requirements of Turkish government authorities
- other industry guidelines with which the project has committed to comply

In Türkiye, movable and immovable cultural and natural assets are protected and preserved by the Law on Preservation of Cultural and Natural Assets (Law No. 2863) published in the Official Gazette dated 23.07.1983 and numbered 18113. Law 2863 establishes legal protection for the following:

- all natural assets and immovable cultural assets constructed up until the end of the 19th century,
- any immovable cultural asset from after the end of the 19th century, identified by the Ministry of Culture and Tourism as an important asset worthy of preservation,
- all immoveable cultural assets located within archeological sites,
- buildings/areas that have witnessed significant historical events during the National War and the foundation of the Turkish Republic and dwellings that have been used by Mustafa Kemal ATATÜRK, regardless of time and registration.

The Ministry of Culture and Tourism is the responsible body to take decisions for protection of cultural heritage in Türkiye at the national level. As part of the Ministry, the High Commission for the Protection of Cultural Assets is responsible for protecting and restoring immovable cultural assets. Implementation of the decisions and regulations issued by the Ministry are undertaken by local administrations. At local level, there are Cultural Assets Protection Regional Boards defined by the Ministry of Culture and Tourism, which are responsible for preservation, registration and classification of cultural heritage within their respective jurisdictions. The relevant Regional Board for the subproject is the Bilecik Cultural Heritage Protection Regional Board Directorate." According to Law 2863, all the natural and cultural assets qualified for legal preservation are properties of the State. Therefore, regional boards have the power and authority to provide legal protection to the preservation sites and to approve or reject all the activities, which have potential negative impacts on the preservation sites such as construction, demolition and excavation activities.

Roles and Responsibilities

Principal roles and responsibilities for the implementation of this procedure are outlined below.

Role	Responsibilities
Contractor -Project Manager	• Overall responsibility for the development, review, approval and coordination of the numerous activities required to initiate, conduct and completeconstruction. • Ensure that this procedure is prepared, and updated as required, based on the activities undertaken as part of thesubproject. • Ensure that adequate resources are made available to implement the procedures and guidelines outlined in thisprocedure.
Contractor - Environmental and Social (E&S) Expert	• Initiation, development, implementation and coordination of the CFP duringconstruction. • Ensure that adequate training is given to all site personnel and sub- contractors, covering the procedures and guidelines outlined in this procedure. Establish appropriate control procedures and conduct audits asnecessary. • Consultation with and reporting to relevant government bodies in case of potential archeological chancefinds. • Record all confirmed chance finds by filling up the “Chance Find Reporting Form” and maintain copies in a log-book. Ensure that the chance finds log-book is up todate.
Contractor - Site Manager	• Day-to-day implementation of the provisions of the CFP in the field duringconstruction. • Notify the E&S Expert regarding potential chance finds during construction.
Employees	• Understand and comply with archeological chance finds procedures and guidelines outlined in thisprocedure. • Reporting of the potential chance finds to the SiteManager.

Impact Avoidance and Mitigation

In the event of an archaeological discovery, the following actions will be implemented:

- All staff involved in land clearance and excavation activities will take the responsibility for managing archaeological protection and will be trained in these aspects by the E&S Expert.
- In case any potential chance find is encountered, all construction activities will cease immediately in the vicinity of the chance find.
- The Site Manager will be contacted immediately. The discovered site location, the characteristics of the potential archaeological material and photos will be recorded by the Site Manager, who in turn will inform the E&S Expert.
- BilecikMuseum Directorate will be notified at the latest within three days after the chance find is encountered. Contact details of the BilecikMuseum Directorate are given below:
  Address: İstiklalNeighborhoodAlırızaÖzkayStreet No.25 Merkez / BİLECİK
  Telephone: +90 228 212 80 81
  E-mail: bilecikmuzesi@ktb.gov.tr
- The site and its vicinity will be secured 24 hours a day against damage or loss, until inspection by the authority.
- The E&S Expert will fill up a “Chance Find Report Form” for each confirmed chance find and inform the Project Manager about the date that the construction work can resume, which is determined by the authorities concerning the conservation of the heritage.
- Further steps to be followed and proper plan to be implemented for the management of the finds (Changes in the layout, conservation, preservation, restoration and salvage) will be decided and reported in writing by the authorities in charge.
- Photographs of the potential artifacts that are likely to be encountered in the construction site are presented in the following pages to be used during the training of the relevant staff.

Verification and Monitoring

E&S Expert/s will record all cases of archaeological chance finds. He/she will fill up a “Chance Find Reporting Form” for each chance find confirmed by the authority and maintain copies in a logbook. A sample of a reporting form which can be used to record chance finds is included below. The chance find logbook will be summarized

on an annual basis and records included in semi-annual monitoring reports to verify that correct management procedures have been followed. Action items will be taken in cases of non-adherence to this CFP.

Reporting

Contractor will comply with reporting requirements including chance finds defined in site-specific ESMP (contractor will develop monthly and quarterly monitoring reports and submit toBozüyükMunicipalitythrough supervision consultant; BozüyükMunicipalitywill examine submit the reports to ILBANK quarterly (and monthly if requested by ILBANK); ILBANK will inform the World Bank by providing regular semi-annual monitoring reports.

Bozüyük Municipality 982.8kWp/ 950 kWe Solar Power Plant Subproject ChanceFindReporting Form		
REGISTRATION		
Name of recorder:		
Dateand time of discovery:		
Site Name:	**Coordinates** **X**	**Y**
Description of find:		
Photograph:		
Estimatedweightanddimensions:		
CONTACT PERSON		
Name/Title/Duty:		
Dateand Time:		
Contactinformation:		
Details of conversation:		
DECISIONS		
Anyprotectionmeasuresto be implemented:		
Movableorimmovable: Ifmoved, pleasespecifythenewlocation.		
Furtheractionsrequired:		
Recommencedateand time:		
Notes:		
SUBMISSION		
Name:	**Date:**	

Appendix-10. Change Notification Form

Change Notification Form		
Subproject Name		
Subproject Location		
Subproject Phase	☐	Pre-construction
	☐	Construction
	☐	Operation
Name of the Institution Notifying the Change		
Date		
Category of the Change *(please select all that apply)*	☐	Legislative Change
	☐	Design Change
	☐	Schedule Change due to E&S factors
	☐	Project Schedule Changes due to technical, financial, legal or administrative factors
	☐	Changes due to E&S issues encountered at subproject implementation
	☐	Contractor or Construction Supervision Consultant Change
	☐	Other *(please specify below)*
Detailed Description of the Change(s)		
Documents Submitted with Change Notification Form		
Name of the Staff Notifying the Change		
Position of the Staff Notifying the Change		
Signature		

Appendix-11. Emissions and Environmental Noise Calculations

Air Quality/Emission

Air pollution will mainly originate from dust emissions and exhaust emissions as well as Greenhouse Gas (GHG) emissions. Considering the location of the subproject area, sensitive receptors are not expected to be affected. During the construction phase of the subproject, the impacts on air quality will mainly originate from dust, exhaust and greenhouse gas emissions:

• Dust emissions during site preparation, excavation, filling and compaction works carried out for construction works.

• Dust emissions from vehicle movements for transporting various construction materials to the subproject site.

• Exhaust emissions from vehicles used in construction activities.

• Greenhouse gas emissions from small amounts of vehicles and machinery.

Since a limited number of equipment and machinery will be operating on the sites, these air quality impacts will be limited to the area and in the short term. In addition, the recycling wastewater distribution network will follow the cadastral roads and the construction will be carried out in stages. Therefore, the receivers will be limited to those located near the construction sites.

Calculation of dust emission topsoil stripping

In the calculation of the dust emissions to be generated, the emission factors given in Table 2.7 of the "Regulation on Control of Industrial Air Pollution" (Amended Table: RG-20.12.2014-29211) published in the Official Gazette dated 03.07.2009 and numbered 27277 were used and the results were evaluated within the framework of the same regulation.

The calculations were made using both "uncontrolled" emission factors, considering that the most adverse conditions could occur during dust formation, and "controlled" emission factors, assuming that the necessary control measures were taken.

The area where the SPP project site will be established is 13,440 m^2. In this area, 10 cm topsoil stripping will be used to strip 1,344 m^3 of soil.

(Soil Bulk Density is taken as 1.6 tons/m^3)[5]

1,344 m^3* 1.6 tons/m^3=2,150 tons

Daily working time is planned as 8 hours. Excavation work is planned as 384 hours in total.

2,150 tons/384hours= 5.6 tons/h

Table 1. Control of Industrial Air Pollution

Sources	Uncontrolled	Controlled	Unit
Removal	0.025	0.0125	kg/ton
Loading	0.0100	0.005	
Unloading	0.010	0.005	
Transportation (total round trip	0.7	0.35	kg/km-vehicle

[5]https://www.soilquality.org.au/factsheets/bulk-density-measurement

distance)			
Storage	5.8	2.9	Dust/ha-day

Mass Flow Rate of Dust Emission to Occur During Removal, Loading and Unloading of topsoil

Uncontrolled; E1 = 5.6 tons/hour x (0.025+0.01+0.01) kg/ton = 0.252 kg/hour

Controlled; E1 = 5,6 tons/hour x (0.0125+0.005+0.005) kg/ton= 0.126 kg/hour

Mass Flow Rate of Dust Emission to Occur During the Transportation of Topsoil

Topsoil taken from the field during construction work will be temporarily stored in the topsoil storage area that will also be located within the work area; this distance is an average of 0.3 km round trip. Assuming that each truck used during transportation can carry 25 tons of material and therefore will make 1 trip in approximately 1 working day (25 tons/23.32 tons/hour), the mass flow rate of dust emissions that will occur during transportation is;

Uncontrolled; E2 = (0.7 kg/km.vehicle) x (0.3 km/1 trip/vehicle) x (1 trip/1 hour) = 0.21 kg/hour

Controlled; E2 = (0.35 kg/km.vehicle) x (0.3 km/1 trip/vehicle) x (1 trip/1 hour) = 0.11 kg/hour

Dust Emission Mass Flow Rate to be Formed During the Storage of Vegetal Soil

Uncontrolled; E3 = (5.8 kg/ha-day)x(1 ha/8 weeks/ 6 days/week/8 hours/day)= 0.0014 kg/hour

Controlled; E3 = (2.9/ha-day)x(1 ha/8 week/6 days/week/8 hours/day)= 0.0007 kg/hour

Accordingly, the total mass flow rate of dust emission to be formed from the stripping operations of the vegetal soil to be carried out;

Uncontrolled; ETOTAL-1 = 0.252 kg/h + 0.21 kg/h + 0.0014 kg/h ≈ 0.4634 kg/h

Controlled; ETOTAL-1 = 0.126 kg/h + 0.11 kg/h + 0.0007 kg/h ≈ 0.2367 kg/h

When calculating the dust emission to be generated during the vegetative soil stripping operations, it was taken into account that the works would be carried out under the most adverse conditions. As stated in the “Regulation on Control of Industrial Air Pollution; for newly established facilities, “Calculation of the Contribution Value to Air Pollution” is required if the pollutant mass flow rates are exceeded.

Considering that all the works to be carried out within the scope of the vegetal soil stripping operations to be carried out at the construction site will be carried out in the same time period (worst case scenario), the dust emission to be generated has been calculated as 0.4634 kg/hour for the uncontrolled case and 0.2367 kg/hour for the controlled case. Therefore, as stated in “Regulation on Control of Industrial Air Pollution”; since the specified pollutant mass flow rates are not exceeded for the topsoil stripping operation, it has not been deemed necessary to calculate the “Contribution Value to Air Pollution” using an internationally accepted distribution model in the facility area of influence.

The construction equipment and transportation vehicles in question will be used at different times during the day.

Calcutation of dust emission Excavation Soil

Within the scope of the subproject, excavation works will be carried out for 60 meters long ETL. The volume of the area to be excavated;

60 m * 0.8 m * 1 m = 48 m^3

(Soil Volume Weight is taken as 1.6 tons/m^3)[6]

48m^3 * 1.6 tons/m^3 = 76.8tons

Daily working time is planned as 8 hours. Excavation work is planned as 384 hours in total.

76.8tons/384 h = 0.2tons/h

Mass Flow Rate of Dust Emission to Occur During Removal, Loading and Unloading of Excavation Soil

Uncontrolled; E1 = 0.2tons/hour x (0.025+0.01+0.01) kg/ton = 0.009kg/hour

Controlled; E1 = 0.2tons/hour x (0.0125+0.005+0.005) kg/ton= 0.0045 kg/hour

Mass Flow Rate of Dust Emission to Occur During the Transportation of Excavation Soil

Topsoil taken from the field during construction work will be temporarily stored in the excavation soil storage area that will also be located within the work area; this distance is an average of 0.3 km round trip. Assuming that each truck used during transportation can carry 25 tons of material and therefore will make 1 trip in approximately 1 working day (25 tons/20.98 tons/hour), the mass flow rate of dust emissions that will occur during transportation is;

Uncontrolled; E2 = (0.7 kg/km.vehicle) x (0.3 km/1 trip/vehicle) x (1 trip/1 hour) = 0.21 kg/hour

Controlled; E2 = (0.35 kg/km.vehicle) x (0.3 km/1 trip/vehicle) x (1 trip/1 hour) = 0.11 kg/hour

Dust Emission Mass Flow Rate to be Formed During the Storage of Excavation Soil

Uncontrolled; E3 = (5.8 kg/ha-day)x(1 ha/1 weeks/ 6 days/week/8 hours/day)= 0.12 kg/hour

Controlled; E3 = (2.9/ha-day)x(1 ha/1 week/6 days/week/8 hours/day)= 0.06 kg/hour

Accordingly, the total mass flow rate of dust emission to be formed from the stripping operations of the excavation soil to be carried out;

Uncontrolled; ETOTAL-1 = 0.008 kg/h + 0.21 kg/h + 0.12 kg/h ≈ 0.338 kg/h

Controlled; ETOTAL-1 = 0.004 kg/h + 0.11 kg/h + 0.06 kg/h ≈ 0.174 kg/h

When calculating the dust emission to be generated during the excavation soil operations, it was taken into account that the works would be carried out under the most adverse conditions. As stated in the “Regulation on Control of Industrial Air Pollution; for newly established facilities, “Calculation of the Contribution Value to Air Pollution” is required if the pollutant mass flow rates are exceeded.

Considering that all the works to be carried out within the scope of the excavation soil operations to be carried out at the construction site will be carried out in the same time period (worst case scenario), the dust emission to be generated has been calculated as 0.338 kg/hour for the uncontrolled case and 0.174 kg/hour for the controlled case. Therefore, as stated in “Regulation on Control of Industrial Air Pollution”; since the specified pollutant mass flow rates are not exceeded for the topsoil stripping operation, it has not been deemed necessary to calculate the “Contribution Value to Air Pollution” using an internationally accepted distribution model in the facility area of influence.

[6] https://gsim2hwnpbvwtwmb1dg11z6.blob.core.windows.net/media/documents/8866271100_202404051549238_Product%20Information%20Sheet%20%28EU_2021_EP%29tr_TR.pdf

The construction equipment and transportation vehicles in question will be used at different times during the day.

It will be used in soil filling materials and leveling works that occur during excavation works.

Emission calculation from vehicles

The provisions of the Exhaust Gas Emission Control and Gasoline and Diesel Quality Regulation, which was published in the Official Gazette dated 30.11.2013 and numbered 28837 and entered into force, and the Exhaust Gas Emission Control Regulation, which was published in the Official Gazette dated 11.03.2017 and numbered 30004, shall be complied with.

During construction, the fuel to be spent is only necessary for the work machines to be used, there will be no fuel consumption for heating etc. The usage periods and fuel consumptions of the work machines to be used during the construction phase of the business are shared in Table 2.

Table 2. Usage periods of the work machines to be used in the facility

Machine type	Number	Power (hp/h)	Working Time (h/day)
Crane	1	200	8
Excavator	1	200	8
Truck	1	200	8
Pile Driver	1	90	8
Water Tank	1	120	8

The fuels to be used in the land preparation and construction phase of the subproject will be diesel fuel to be used during the work of the construction equipment. Apart from this, there is no other type of fuel to be used in the subproject. Diesel fuel will be preferred as fuel for the construction equipment to be used within the scope of the subproject. There will be no fuel storage in the subproject area and the fuel supply to the construction equipment will be made with fuels supplied from authorized stations. The characteristics of diesel fuel are given below:

Table 3. Diesel Properties

Properties	Diesel	Properties	Diesel
Consistency	Very fluid	Carbon Wastes (%)	Trace
Type	Distilled	Sulfur (%)	0.4-0.7
Color	Amber	Oxygen-Nitrogen (%)	0.2
Density (150c-gr/cm^3)	0.8654	Hydrojen (%)	12.7
Viscosity (380 ^{o}C)	2.68	Carbon (%)	86.4
Pour Point (0^{o}C)	-18	Water and Sediment (%)	Trace
Atomization Temperature (0^{o}C)	Atmospheric	Ash (%)	Trace
Pumping Temperature (0^{o}C)	Atmospheric	Heat Value	9.387

Source: Air Pollution Control and Supervision, Chamber of Chemical Engineering, May, 1999
The emission factors table determined by the EPA (Environment Protection Agency) was used for the construction equipment to be used within the scope of the subproject.

Table 4. Emission Factors Used in Calculations

Power	Year	CO (g/kWh)	HC (g/kWh)	NOx (g/kWh)	PM (g/kWh)
56 ≤ kW < 130 (75 ≤ kW <175)	2012 and above	5,0	0,19	0,40	0,02
130 ≤ kW < 560 (175 ≤ kW <560	2011 and above	3,5	0,19	0,40	0,02

Source: USEPA Standards

Using the data in the table above, exhaust gas emissions that will occur during the construction and operation phases are calculated with the formula below and entered into the tables.

Emission Value (kg/h) = Emission Factor x Engine Power (kW) x Number x kg/1000 gr

Table 5. Emission calculations

Equipment to be used	Piece	Hp	kW	Emission Factor (g/kWh)		Emission Value (kg/sa)
Excavator	1	200	149	CO	3,5	0,52
				HC	0,19	0,03
				NOx	0,4	0,06
				PM	0,02	0,003
Crane	1	200	149	CO	3,5	0,52
				HC	0,19	0,03
				NOx	0,4	0,06
				PM	0,02	0,003
Pile Driver	1	90	67.05	CO	5	0,34
				HC	0,19	0,013
				NOx	0,4	0,026
				PM	0,02	0,0013
Truck	1	200	149	CO	3,5	0,52
				HC	0,19	0,03
				NOx	0,4	0,06
				PM	0,02	0,003
Water Tanker	1	120	89.5	CO	5	0,4475
				HC	0,19	0,017
				NOx	0,4	0,036
				PM	0,02	0,002

1 Hp = 0.745 kW.[7]

When emissions from all vehicles are added together;

Table 6. Amount of Emission

Pollutant	Amount (kg/h)	Working Time (h)	Total Amount (kg/8 h)	24 hour emissions
CO	2.3475	8	18.78 kg	18.78 kg/24 h= 0.7875 kg/h
HC	0.12	8	0.96 kg	0.96 kg/24 h = 0.04 kg/h
NOx	0.242	8	1.936 kg	1.936 kg/24 h = 0.08 kg/h
PM	0.0123	8	0.0984 kg	0.0984kg/24 h = 0,004 kg/h

The calculation was made assuming that all vehicles were operating at maximum operating time and in the same month.

Pollutant	Amount (kg/h)	Mass flow rate (kg/hour) given in Annex-2 Table 2.1 of the "Regulation on Control of Air Pollution from Industrial Sources"	Evaluation
CO	0.7875	50	Below the limit value

[7] https://sbsolar.com.tr/1kw-kac-hp-bir-beygir-kac-kw?srsltid=AfmBOopeJLuU2e08CtSYKdRWghT6TSx7iJDNzzfTjy0U2vio8kOh7QKR

HC	0.04	2	Below the limit value
NOx	0.08	4	Below the limit value
PM	0.004	1	Below the limit value

The calculated exhaust gas emission amounts were calculated cumulatively assuming that all machinery and equipment operate at the same time and are entered in the table above. When the calculated hourly mass flow rate (kg/hour) value was compared with the mass flow rate (kg/hour) values given in Annex-2 Table 2.1 of the "Regulation on Control of Industrial Air Pollution", it was seen that the emission mass flow rates were below the limit values given in the regulation. The calculations were made based on the assumption that all work machines operate simultaneously and continuously in their areas of use, and in reality, such an application is not very possible. Therefore, the emission levels that will occur in reality will be lower than the emission levels found in the calculations.

Where the requirements in Türkiye differ from the levels and measures presented in the EHS Guidelines, the more stringent (such as the most stringent discharge and emission standards) will be applied in the project specification.

Noise

The subproject activities are planned to be completed in ~2 month. Within the scope of the subproject, work will be carried out during the daytime, 6 days a week, 8 hours a day.

The sound power levels of the equipment were calculated according to the formulas given below according to the permitted sound power levels defined in the table given in Article 5 of the "Regulation on Noise Emission in the Environment Created by Equipment Used in Open Areas", which was published in the Official Gazette dated 30.12.2006 and numbered 26392 and entered into force, and data from similar activities were also taken into account.

Table 7. Equivalent Noise level to the distances According to Distribution

Distance (m)	40	50	100	200	300	400	500	750	1000
Equivalentnoiselevel	64.4	62.3	56.0	49.3	45.3	42.4	40.1	35.8	32.8

Since the closest settlement to the subproject area is 30-35meters away,

Based on calculations assuming the simultaneous and continuous operation of all vehicles during working hours,

- The noise level at 30 meters is 65.45 dBA.
- The noise level at 35 meters is 66.5 dBA.

.

Table 8. IFC General EHS Guides Noise Levels

Receptor	Daytime (07:00 - 22:00)	Night (22:00 - 07:00)
Settlement Areas	**55**	**45**
Commercial/industrial areas	70	70

Although these values are above the limit values set by the Environmental Noise Control Regulation published in the Official Gazette dated 30.11.2022 and numbered 32029, and also above the IFC noise limit values, the

calculations were made assuming that all equipment will operate simultaneously. In real life, lower environmental noise levels are expected. In addition, in case of any complaints about noise, measurements will be taken to determine the environmental noise level caused by construction work and if it is high, additional measures such as barriers, arrangement of working hours, etc. will be taken.

Appendix-12. Coops and pergolas to be moved

Images of the old location

Images of the new location

Appendix-13. Minutes

TUTANAK

Tarih: 05.02.2025
Konu: Ges projesi için vatandaş görüşü.

Biz aşağıda imzası bulunanlar;

Bozüyük Belediyesi tarafından yapılacak GES sahasının içerisinde Kafes/Çardak sahipleri olarak. aşağıda belirtilen hususları değerlendirmiş bulunmaktayız.

Parsel içinde yer alan kümesin/çardağın taşınması Bozüyük Belediyesi'nce tarafıma bildirildi ve süreç ile ilgili tüm detaylar şeffaf bir şekilde yürütüldü. Kendi rızam ile taşınmasına izin vermiş olup, herhangi bir mağduriyetim bulunmadığını ve yukarıda belirtilen hususlardan dolayı şikayetimin olmadığını beyan ederim.

Kümes Sahibi
Adı Soyadı: [redacted]
T.C. Kimlik No: [redacted]
İmza: [redacted]

Belediyenin Kümesimi projeden dolayı belirlediğim yere taşımıştır projenin tarafından(?) Herhangi Şikayetim yoktur uygulanmasını destekleyeceğim.

Çardak Sahibi
Adı Soyadı: [redacted]
T.C. Kimlik No: [redacted]
İmza: [redacted]

Çardağımı belirlediğim yere taşınmıştır Belediye tarafından bütün taşıma işlemi tamamlanmıştır.

Şahitler
Adı Soyadı: [redacted]
İmza: [redacted]

Adı Soyadı: [redacted]
İmza: [redacted]

Yetkili Kişi (Proje Temsilcisi)
Adı Soyadı: [redacted]
Unvanı: [redacted]
İmza: [redacted]

TUTANAK

Tarih: 05.02.2025
Konu: Ges projesi için vatandaş Görüşü

Bozüyük Belediyesi Güneş Enerji Santrali projesi inşaat ve işletme süreçlerinde, mevcutta kullanılan ve kapatılacak olan yolun yol güzergahı proje faaliyetleri için kullanılacaktır. Bu süreçte:

- Yolun geçici veya kalıcı olarak kullanımı konusunda bilgilendirildik.
- Yol kullanımı sebebiyle herhangi bir mağduriyet yaşamayacağımızı, güzergah üzerindeki ikametimizin bu durumdan olumsuz etkilenmediğini beyan ederiz.

Bu konular hakkında tarafımıza gerekli bilgilendirme yapılmış olup, yukarıda belirtilen hususlardan dolayı herhangi bir şikayetimizin olmadığını beyan ederiz.

İlgili Mülk Sahipleri

Adı Soyadı	T.C. Kimlik No	Parsel No (Varsa)	İmza
[redacted]	[redacted]		[redacted]

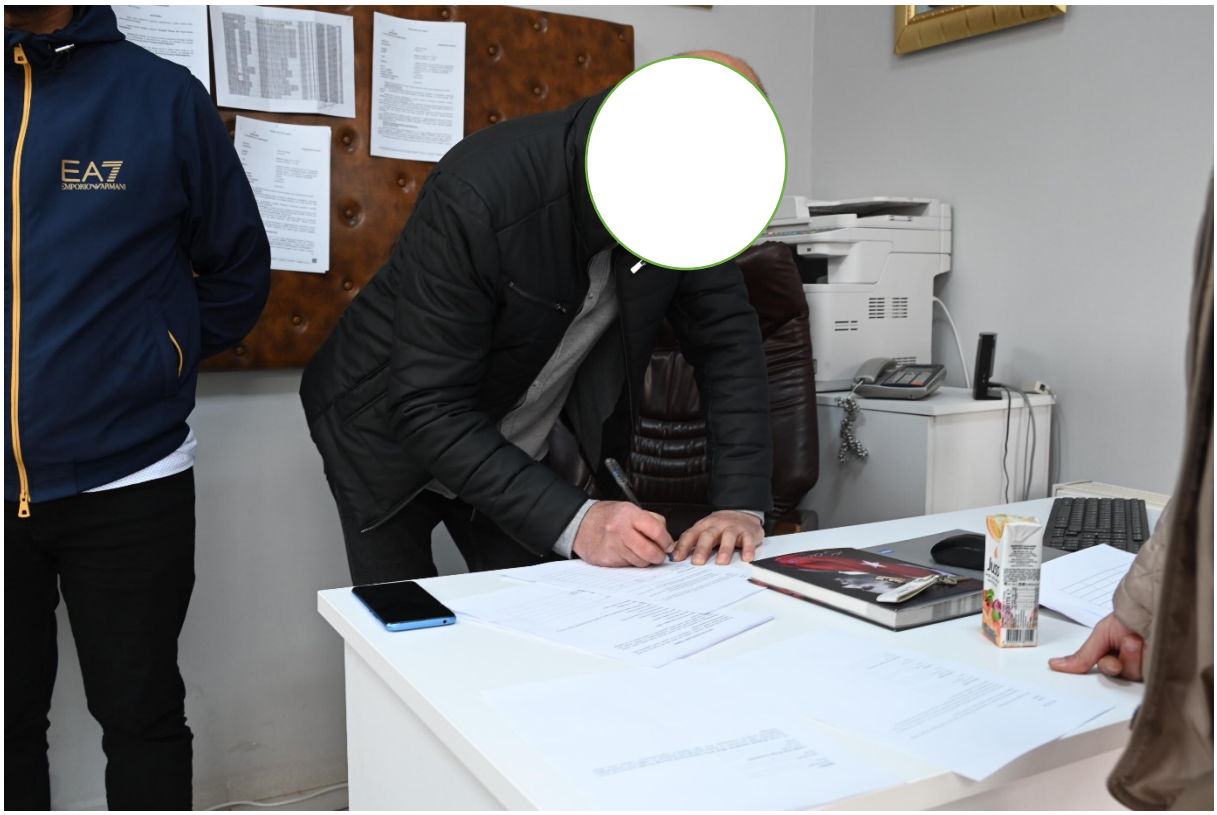
Şahitler
Adı Soyadı: [redacted]
İmza: _____

Adı Soyadı: _____
İmza: _____

Yetkili Kişi (P
Adı Soyadı: [redacted]
Unvanı: _____
İmza: _____

Bu belge, **Bozüyük Belediyesi 982,8 kWp Güneş Enerji Santrali Projesi** kapsamında proje faaliyetlerinin ilgili parsellerde ve ulaşım güzergahında herhangi bir mağduriyet yaratmadığını belgelemek amacıyla hazırlanmış olup, ilgili tarafların bilgilendirilmesi sonrası imza altına alınmıştır.

Appendix-14. Site Visit Images


EA7
EMPORIO ARMANI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Appendix-15. Trees' Commitment Letter

BOZÜYÜK BELEDİYESİ 1890

TAAHHÜTNAME

Bozüyük İlçesi, Yeni Mahalle, 345 ada 38 parselde kurulacak olan 982,8 kWp gücündeki Güneş Enerji Santrali (GES) projesi kapsamında, proje alanı içerisinde yer alan 1 adet söğüt ağacı ve 1 adet yabani ağacın kesilmesi planlanmaktadır. Alt proje faaliyetlerine başlanmadan önce söz konusu ağaçların kesilmesi halinde, Kurumumuza ait başka bir bölgede aynı sayıda ağaç dikimi yapılacağını taahhüt ederim.

T.C.

Murat ARIK

Başkan Yardımcısı

Appendix-16. Commitment for the Road

TAAHHÜTNAME

Bozüyük İlçesi, Yeni Mahalle, 345 ada 38 parselde kurulacak olan 982,8 kWp gücündeki Güneş Enerji Santrali (GES) projesi kapsamında, mevcut durumda kullanılan patika yolun proje parseli sınırları içinde kalması nedeniyle, imar planında yer alan kadastral yol güzergahı doğrultusunda parsel dışında yeni bir yol inşa edileceğini taahhüt ederim.

T.C.
BELEDİYE
Murat ARIK
Belediye Başkanı